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UNIVERSITY OF ALBERTA

THE DETERMINANTS OF RETIREMENT INCOME

by

Sophia Aspasia Papaioannou

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS

DEPARTMENT OF SOCIOLOGY

EDMONTON, ALBERTA

Fall 1990

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(SIGNED) S.A. Papaioannou

PERMANENT ADDRESS:
9742 154 Street
Edmonton Alta
T5P 2Z3

DATED October 12 1990.

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled THE DETERMINANTS OF RETIREMENT INCOME submitted by SOPHIA A. PAPAIOANNOU in partial fulfillment of the requirements for the degree of MASTER OF ARTS in SOCIOLOGY.

M. Gillespie

H. Krahn

A. M. Decore

Date

DEDICATION

Στήν κόρη μου Νικολέττα–Όλγα

καί

στόν Σωτήρη

ABSTRACT

The primary purpose of this thesis is to identify the factors that affect different retirement income sources in Canada - namely pension and investment incomes. The retirement income determination model utilized in this study includes significant variables from the status attainment, human capital, and labour market segmentation models, specifically: social origins, age, gender, marital status, number of children, education, occupation, years worked with last employer, and sector location. In addition, it includes certain pension-specific variables such as age at retirement and entitlement to a private pension. The data are obtained from the 1979 York Quality of Life Survey. The findings show the differing explanatory powers of the three income determination models used in this project. The status attainment and human capital models provide better explanations of both pension and investment income differences among Canadian retirees. With respect to pension income, the respondent's occupation has a significant positive direct effect on pension income.

This income source is also affected by the possession of a fully-indexed pension. Regarding investment income, occupational status is also found to exert a positive direct effect on investment income. In addition, business owners report more investment income than employees. The human capital variable years worked with last employer was also positively related to investment income. Even though little support was found for the hypothesis which argues for the importance of sector location in influencing the different retirement income sources, there is strong evidence of sectoral differences in the receipt of private pensions. This contradictory results can be attributed to the problems associated with measuring sector location. Future research employing a more comprehensive measure of sector location may demonstrate the explanatory power of this labour market segmentation variable.

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I. INTRODUCTION

A. Introduction

One of the major focuses of the social stratification literature is the examination of income and wage differentials among workers. There are two distinct and competing views regarding income and wage differentials which "ultimately reflect a broader debate over the nature of social inequality in modern industrial societies" (Leon, 1985:351). One such view attributes income differences in individual characteristics among workers, while the other attributes these differences to the economic structure of the society. The status attainment and human capital theories reflect the first view, while labour market segmentation and class-based (e.g.Marxist) theories reflect the latter.

Income determination models based on individual-level and/or structural explanations have been used extensively by many researchers to examine income and wage differences among labour force participants. Very few attempts however, have been made to use these models to examine income variations among the retired, despite the fact that "income entitlements in old age are tied to previous earnings and other market based criteria" (Myles, 1984:48).

Since labour market earnings and retirement income are closely related, we would expect that income inequalities prior to labour force withdrawal will be reproduced in retirement. For example, individuals holding "good jobs" will fare better in retirement than those working in "bad jobs" because the former are more likely to have private pensions and increased ability to "acquire retirement-income-producing assets" (Maxwell, 1985: 55).

The proposed study will identify the factors that affect different retirement income sources. The status attainment, human capital and labour market segmentation models will be used to investigate income differences among retired workers interviewed in the 1979

York Quality of Life Survey. Henretta & Campbell (1978), Maxwell (1985), and McDonald & Wanner (1987) have demonstrated the explanatory power of these income determination models for studying income inequalities in retirement. In this thesis the model for examining economic status in retirement will include significant variables from the status attainment, human capital, and labour market segmentation models. Since these three models attribute income and wage differences to different causes, the incorporation of such variables into a comprehensive model will enable us to determine the relative importance of the different sources of retirement income inequalities (Ornstein, 1983). In addition, by including variables explicitly addressed to the income determinants of the retired (such as private pensions and/or retirement benefits), this composite model will increase our understanding of the life-course determinants of financial success in retirement.

A review of previous Canadian studies demonstrates the need for this type of a comprehensive model for studying the determinants of retirement income. In Canada, studies which have utilized such comprehensive income determination models have mainly been concerned with explaining differences in job income, focusing exclusively on current workers. This thesis therefore, strives to address this gap in the Canadian literature. Furthermore, by attempting to identify the relative importance of the different factors that affect various retirement income sources, this thesis can provide some useful insights regarding the nature of social inequality contributing thus to the larger theoretical debates over this issue.

Since my working hypothesis in this study is that the factors that affect the level of labour market earnings will also affect the level of retirement income, I need to establish the link between pre-retirement earnings and retirement income. The section that follows identifies all possible retirement income sources in Canada, and examines the extent to which labour market earnings and other labour market criteria influence the financial status of Canadian retirees.

B. Sources of Retirement Income in Canada

The purpose of this section is twofold. Firstly, it attempts to give a complete picture of the financial position of all Canadian retirees by identifying all possible retirement income sources. Secondly, it tries to show the extent to which labour market earnings and other labour market criteria influence the level of income that Canadians receive when they retire.

Retirement income comes from a number of possible sources. Approximately 60% of all retirement income in Canada comes from three nationwide public pension programs: Old Age Security (OAS), Guaranteed Income Supplement (GIS), and Quebec/Canada Pension Plans (Q/CPP). Employer-sponsored pensions and annuities account for less than 20% and asset income (income from investments, rents etc.) accounts for a little more than 20% of the total income received at retirement (Myles, 1981:22).

Among the three nationwide public pension programs, the Old Age Security program is the oldest. This program pays a flat benefit to all individuals who are 65 and over, subject only to residency requirements. The primary function of this program is to guarantee a minimally acceptable floor of income, so that no aged Canadian can live in poverty. In 1978, the benefit level of this pension was equivalent to 14% of average wages and salaries. Old Age Security payments are fully indexed to the cost of living. Benefits are raised every January, April, July and October according to the increase in the Consumer Price Index.

The second nationwide pension program is the Guaranteed Income Supplement (GIS). This program was first established in 1967 as an income-tested supplement to the universal Old Age Security benefit. The Guaranteed Income Supplement is intended to help the elderly poor who have little or no income other than Old Age Security pension.

A similar program to the Guaranteed Income Supplement (GIS) is the Spouse's Allowance (SPA). This program was established to assist low-income couples where one of the spouses is 65 and over, but the other is between 60 and 64, and therefore not eligible

for either OAS or GIS. The Spouse's allowance guarantees these couples an income equal to the income they would have received from OAS and GIS, had each of the partners been 65 or over. Like GIS, benefits are reduced by a portion of other income and are not taxable.

In addition to these federal government sponsored programs, the provincial governments also provide assistance to the elderly. Individuals over 65 in six provinces (Nova Scotia, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia), and the Yukon and the Northwest Territories are eligible for additional income from provincial supplements. The amount and frequence of payment vary considerably from province to province (National Council of Welfare, Canada, 1984).

Like the Guaranteed Income Supplement, the provincial and territorial supplements are income-tested and are generally available to all persons 65 and over, with the exception of Manitoba's benefits which are paid to retired persons 55 and over. Alberta offers an additional pension to widowed persons. Ontario, Saskatchewan, Alberta, British Columbia, the Yukon and the Northwest pay their supplements on a monthly basis; Manitoba pays the supplement quarterly, while Nova Scotia makes lump-sum payment in May of each year. Unlike the federal programs, the provincial supplements are not indexed to the cost of living (National Council of Welfare, Canada, 1984).

As we can see so far, Canada provides a universal non-contributory flat-benefit pension to its citizens. These benefits are paid out to all retired Canadians irrespective of their labour market activity. Canada also provides income-tested benefits to those that have no alternative sources of income. This flat-benefit pension system ensures all Canadians of a minimum level of income when they retire.

In addition to these benefits however, Canadians may have other sources of retirement income. All these sources, which I will now identify, have strong ties with the labour market. It is the existence of these sources that promotes inequality among the various groups of the Canadian population. In fact, Myles (1984:53) argues that "the more the

benefit structure departs from the flat-benefit system, the greater the income inequality will be within the elderly population".

The federal and provincial governments together established the third pension program: the Canada and Quebec Pension Plans. These plans are almost identical and are contributor and earnings-related. Every person between the ages of 18 and 65 who is in the paid labour force, whether he/she is an employee or self-employed is required by law to make contributions to the Canada/Quebec Pension Plan. Those who continue working after the age of 65 are allowed to make contributions until they reach the age of 70, when they can no longer contribute into the plan. Contributions are calculated as 1.8% of an employee's contributory earnings and are matched by an equal payment from the employer (National Council of Welfare, Canada, 1984).

Contributions to the Canada and Quebec Pension Plans are not collected if earnings below a base (in 1984, the minimum was $2, 000), or if they exceed a specified ceiling ($20,800 in 1984). Workers who have earned much more than the maximum pensionable earnings will receive the maximum pension, while those who earned half of the maximum pensionable earnings will receive only half of the maximum pension (National Council of Welfare, Canada, 1984).

The lifetime average on which Q/CPP retirement pensions are based is calculated as the years a worker could have been in the labour force between the ages of 18 and 65, and not his actual working life. So, even if someone has earned more than the maximum pensionable earnings but worked for 20 years only, he/she will receive less than the maximum retirement pension.

Because the Canada and Quebec Pension Plans are earnings related, lower wage earners receiver small Q/CPP pensions than middle and upper-income employees when they retire. In other words, this particular pension program accommodates the more "affluent" Canadians and as such it can be seen as perpetuating the wage differences that are established prior to retirement.

The most serious weakness of Q/CPP is that it is inaccessible to a large proportion of

female retirees. The reasons for this is that women on the average are more likely to work in low-paid jobs, to change jobs frequently, to enter the labour force at later dates (because of child-bearing and child-rearing responsibilities) and more likely to work part-time[1]. The situation is even worse for women who have worked at home all their life. Since housework is not considered productive labour, housewives cannot contribute to the Plans, and they cannot therefore qualify for Q/CPP retirement pensions. Widowed women also do not benefit much from this pension program. As a rule, widows are entitled to 60% of their husband's Q/CPP pension, which usually works out to be a small amount especially if their husbands' earnings were not high enough to qualify for the maximum retirement pension (National Council of Welfare, Canada, 1984).

Private pension and retirement savings plans are another source of income for the retired population. Private pension plans are sponsored by a wide range of employers including all three levels of government, private companies, trade unions, professional, religious, charitable organizations and others.

Workers in large organizations are more likely to enjoy pension coverage and more likely to have pension protection than their counterparts in smaller firms. Pension coverage in small firms is almost non-existent. In addition, government workers are more likely to receive pensions since almost all employees of governments and crown corporations have pension coverage. Lower wage earners seldom belong to private pension plans since most work in small, non unionized firms characterized by low pay and limited promotional opportunities. Large firms offer private pensions as part of the job package incentives to keep workers on the job and thereby maintain a stable labour force.

The formulae used to calculate private pensions is usually based on length of plan membership and earnings. Generally, the term of employer-sponsored pension plans require a certain number of years of service before terminating employees can acquire a vested right to a deferred pension.

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[1]because of child-bearing and child-rearing responsibilities, women are more likely to have intermittent employment (Wilson, 1983).

Vesting benefits are the most contentious issue in pension negotiations (Schayer, 1979). Vesting entitles an employee to both his own and his employer's contributions paid out on his behalf. Contributions to a private pension plan do not become the property of the employee until he or she fulfills certain length of employment and age requirements. Vesting occurs when the share contributed by the employer becomes the property of the employee.

The federal government and most provinces have enacted laws covering private pension plans that set minimum standards for vesting. Most pension contributions must be vested if an employee has been a member of a plan for ten years and has reached the age of 45. Pension contributions so vested are locked in by law. Vesting ensures that employees receive the deferred earnings when he/she reaches normal retirement age.

Pension credits in most private pension plans are not portable. If employees move to another job they are likely to loose their pension credits. They will only receive a deferred pension from their previous employer if they have worked long enough to qualify for vesting. Portability provisions exist mainly in the public sector, universities, life insurance industries, and some multi-employer industries such as construction.

The vesting and portability provisions of most private pension plans penalize women much more than they penalize men. Because of labour force interruptions, women are rarely eligible for such pensions. In 1980, only 34.6% of employed women belonged to private pension plans compared to 50.6% of employed men, while 81% of unattached women over 65 had no private pensions (Roadburg, 1985:34).

Private pensions also rarely help widowed women. A study on Pension Plans in Canada showed that in 1980 approximately 78% of members of private employer-sponsored pension plans and about 30% of members of public sector plans, had no provisions for survivor's pensions if the contributing spouse died after retirement (Roadburg, 1985:35). Because most plans with survivor's benefits usually give the pension holder the option of a full pension, or a reduced pension that may be transferred to

the surviving spouse, most employees tend to choose the former option. Since most surviving spouses are women, they are hit harder by their husband's death especially if they themselves have not contributed to any pension plan (Roadburg, 1985).

Another very important component of the retirement income system is income coming from investments generated from private savings. One of the main ways people in Canada save privately for their retirement is through Retirement Savings Plans (RRSPs). Contributions to these plans are not subject to taxes as long as the money stays in the plans. Persons may contribute a full of 20% of their earnings up to an annual limit of $5,500. Individuals who are members of private pension plans can contribute up to $3,500 per year.

Unfortunately, Retirement Savings Plans are accessible only to the higher-income Canadians since these individuals are more likely to be in a better position to contribute to RRSPs, than low-income wage earners. Overwhelmingly, most RRSP members have above average incomes (according to the 1981 statistics eight in ten). In addition, affluent Canadians are able to put more money into their RRSPs than low or modest income earners. (National Council of Welfare, Canada, 1984).

In summary, this section has demonstrated that for the most part retired Canadians depend on market based criteria to maintain themselves in old age. With the exception of flat-benefit pensions (OAS, GIS, SPA), all other sources of income we have identified have strong ties with the labour market. As such, wage differences which are established prior to labour force withdrawal are retained in retirement and thus we expect that not all Canadians have the same financial resources when they retire.

II. REVIEW OF RELEVANT LITERATURE

A. Introduction

While models for studying retirement income differences have not been well developed, there are several models which explain job income differences among current workers. These models can be extended to studying income disparities among retired individuals, since as we have already established, the level of previous earnings greatly influences the level of retirement income. The purpose of this section is to discuss these models.

B. Income determination models

Basically, research on income inequality has been guided by three main theoretical perspectives. These perspectives are: status attainment, human capital, and labour market segmentation. The first two come from two different traditions (the former from sociology and the latter from neoclassical economics). They have been labelled as individualistic models since they use individual characteristics to explain differences in occupational status and/or income. These models concentrate mainly on the supply side of labour and ignore the characteristics of employers (Ornstein, 1983; Brym, 1986). Taking for granted the existence of a free and homogeneous labour market, they argue "that individual placement in the occupational structure is a reflection of individual-level characteristics" (Brym, 1986:81).

These theoretical perspectives share most of their basic ideas and assumptions with the functional theory of stratification (Clairmont et al, 1983). The latter posits a purely theoretical sociological explanation of why some workers receive higher income than others. This theory asserts that inequality in society is necessary, functional and inevitable.

In all societies, it is argued, there are some positions which are more important than others; some require special talent, others require lengthy and costly training programs. Hence, societies must develop a system of rewards to induce individuals to fill these positions, otherwise there would be a scarcity of trained workers for them.

Status attainment and human capital theories incorporate two common variables in their analysis: education and occupation. Because of this, many researchers tend to lump these two models together. In this study, the two models are treated separately since despite their similarities there are important differences between them. The status attainment theory is concerned with the transmission of parental status to the next generation and emphasizes the importance of social origins in both occupational and income attainments[2] (Ornstein, 1982: Boyd & Humphreys, 1979; Hunter, 1986). According to this perspective educational attainments reflect differences in family backgrounds (Ornstein, 1982). Human capital theory on the other hand, emphasizes investments in education, training, and experience when explaining income differences, and pays no attention to the importance of social origins. These two opposing methods of determining the effect of education on both occupation and income dictate the need to differentiate between these models.

Unlike the status attainment and human capital theories, the labour market segmentation perspective concentrates on institutional arrangements or structures of the labour market rather than individual characteristics of workers. Models developed from this perspective are usually referred to as structural models (Leon, 1983:351). A large number of research studies (Beck et al, 1978; Bluestone et al, 1973; Hodson, 1978; Wachtel, 1972) have found that labour markets have significant effects in earnings regressions, net of human capital variables. There are different criteria used to identify labour market segments. Some include characteristics of occupations, industries or a combination of both. There are some unresolved issues regarding the criteria used to divide the economy into core and periphery sectors. American studies have found weak correlations among the different

[2]Even though income is included in some status attainment models, it is not the main area of inquiry (Bielby, 1981).

industrial characteristics (i.e., industrial concentration, firm size, wages, and skill composition of the labour force), that are used by labour market theorists to define core and periphery sectors (Ornstein 1982:21). Despite these limitations however, this model provides "the only effective way out of the dilemma posed by the failure of competitive mechanisms to remove discrimination" (Ornstein 1982:21).

In general, labour market theorists conceptualize labour markets as being segmented into uneven, non-competing segments which ensure unequal distribution or rewards. Even though sociologists and economists disagree on certain aspects of this theory, the common argument is that "an earlier era of competitive capitalism in western industrial societies has been succeeded by an era of monopoly capitalism" (Krahn, 1983:83). This transition from competitive capitalism to monopoly capitalism has not affected all industries the same way. The creation and perpetuation of segmented labour markets were the result of this uneven transition (Dowd, 1980:76). Industries which remain close to competitive capitalism provide lower wages and fewer fringe benefits than monopolistic-capitalistic industries.

In this thesis, I argue that both individual attributes and structural factors influence income and retirement income attainments. Accordingly, a complex model of both individual and structural explanations will be employed in this study to explain income differentials among retired Canadians.

The status attainment, human capital and labour market segmentation models and their empirical support will be reviewed in more detail in the following section. Included in this review will be empirical studies which have attempted to explain retirement income differences by utilizing these three particular theoretical frameworks. Such a review will assist us in developing a more comprehensive model for studying retirement income differences in Canada.

The Status Attainment Model

In the status attainment approach, income rewards are reflections of the value society places on the positions occupied by individuals. Individuals obtain these positions through their family background, ability, educational achievement, and other personal characteristics (Leon, 1986:353).

Status attainment models provided the initial "framework to quantitatively integrate inter- and intra-generational aspects of the relations among education, occupation, and income" (Ornstein, 1986:353). This model conceptualizes current occupational status as an outcome of family origin variables, educational attainment, and job status. Social origin variables are important since they are indicators of economic resources in a family. The level of education is included since it possesses certification properties which qualify or disqualify entry into the labour market. Status of first job is incorporated since certain occupations have career trajectories associated with them (Boyd, 1985).

The Blau and Duncan (1967) status attainment model traces the influence of personal and family background characteristics on educational level, occupational status and economic attainments (Leon, 1986). Because this model decomposes the association between family of origin characteristics and respondent's occupational status into the intervening attainments of education and first-job status, it is useful in explaining the mechanisms by which social origins affect the socioeconomic status of the offspring (Boyd, 1980).

The applicability of this model for explaining income inequalities among the retired lies with the fact that social origins affect labour market opportunities. Individuals from educated and well-to-do parents are more likely to have better education and hold a higher status job themselves. These attainments in turn, translate into higher retirement income.

The primary model used in the status attainment research has been the Blau and Duncan Status Attainment model (1967). Blau and Duncan were mainly interested in examining the

relationship between family life and occupational life. Specifically, they were interested in knowing how a man's ascribed status in his family of orientation influences his achieved status in the occupational structure. Their model tried to separate the process of occupational mobility. It traced the effects of family background (measured in terms of father's educational and occupational status) on educational attainment; the effects of education and family background on first job status and the effect of all these three variables on current occupational status. Their findings indicated that social origins had a considerable influence on a man's chances of occupational success. Education was found to be the key mechanism through which father's status is transmitted to the next generation.

A number of Canadian studies have adopted the Blau and Duncan status attainment model. Their findings indicate that the process of status attainment in Canada is similar to that of the United States (Cuneo & Curtis, 1975; Turritin, 1974; Ornstein, 1981; McRoberts, 1985; Goyder, 1985). In general, these studies show that the social origins of Canadian men exert a strong influence on their educational and occupational attainment. Findings revealed that there is a strong tendency for the son's occupation to be the same or similar to that of his father's. The highest rate of inheritance was found to be among professional and semi-professional occupations (32.3%), followed by lower level blue collar workers (McRoberts, 1985).

Gender and Ethnicity

The original status attainment model of Blau and Duncan focused solely on white males and therefore was concerned mainly with the association of father's and son's status. In the early 1970's, however, the model was extended to include women (Treiman & Terrel, 1974; McGlendon, 1976; Sewell, &Hauser, 1980). Two additional variables are usually included to the original status attainment model; those pertaining to the social-economic characteristics of the mother and those pertaining to additional roles of wife and mother

(Cuneo & Curtis, 1975; Boyd, 1985).

In general, it was found that both men and women are equally influenced by their parents, with the like-sexed parent being an important role model (Cuneo & Curtis, 1975; Treiman & Terrell, 1975; Boyd, 1985; McGlendon, 1976; Featherman & Hauser, 1976). Maternal education was found to have more influence on the educational attainment of daughters than that of son's, and father's education influenced son's educational achievements to a greater extent (Cuneo & Curtis, 1975; Boyd, 1985; Treimann & Terrell, 1975). The findings regarding the influence of mother's occupational status on both son's and daughter's socioeconomic achievements, however, have been inconsistent (Marini, 1980; McGlendon, 1976; Boyd, 1985).

Apart from comparing the status attainment of Canadian men and women, studies have attempted to compare the status attainment of different ethnic groups. Canadian stratification and mobility studies have argued that there is a relationship between ethnicity and class. Ethnicity is seen as preventing full and equal access to opportunities in the labour market.

Studies on this topic however, show contradictory findings. Lautard and Loree (1984) using a census data from 1931 to 1971 found that the relationship between ethnicity and class is a "durable feature of Canadian society" and the "average occupational inequality is enough to justify the use of the concept of the vertical mosaic" (p.342).

Daroch (1979), Pineo and Porter (1985) and Ornstein (1981) found the impact of ethnicity on overall socioeconomic achievements to be relatively small. Their findings indicated that the status of one's family of origin, the level of education, and area of residence was the primary reason why some groups did better than others.

Brym (1986:88) also in a recent literature review of class and ethnic dimensions in Canada, states that the Canadian literature clearly demonstrates that "the effect of ethnicity on status attainment weakens as immigrants become acculturated". Because of these inconclusive findings, ethnicity will not be included in this analysis.

Retirement income

Henretta and Campbell (1978) were the first to extend the status attainment model of Blau and Duncan to study retirement income. Their study sought to "relate characteristics of family of origin and early attainments to later attainments" (981). To assess how the transition to old age affects the stratification process, Henretta and Campbell compared data from the 1962 OCG Survey that included males aged 55-64 and data from the 1975 NORC General Social Survey that included males from 66-77 who were members of the same birth cohort. Included in their model were the five Blau and Duncan variables plus marital status and number of children.

Their analysis showed that earlier attainments determined the level of retirement income. They called this process "status maintenance" (981). Father's and respondent's education and occupation, marital status and number of children all had the same effect on retirement income as they had on pre-retirement income. The findings indeed demonstrated that the "disruption in sources and amounts of income resulting from the retirement of the retirement of the majority of its members leaves the relation of status variables to income almost untouched" (990). In addition to these findings, the marital status variable was found to be positively related to income, while the number of children was negatively related.

Because Henretta and Campbell were the first ones to demonstrate the applicability of existing income determination models for the study of retirement income, their study has many flaws. First of all, their analysis did not follow individuals making the transition into retirement[3], since they compared a single-age cohort measured at two time periods from different studies (Leon, 1985:353). As a result, the comparison of the determination models for pre-retirement and retirement income for the same individuals can not be done.

Since their model was a replication of the male-dominated Blau and Duncan model,

[3]This thesis will not study this transition as well, because of the small number of individuals who have retired from 1977-1981, the years that the panel surveys took place.

Henretta and Campbell also excluded women from their analysis. Because of this exclusion, it is not possible to determine whether the process of status maintenance in old age is the same for women as it is for men.

Another major flaw with this study is that the NORC and GSS surveys they used, do not provide information on variables that relate directly to determinants of retirement income, such as pensions plans or sector of the economy in which the respondent worked, and thus they were not included in this study.

Following Henretta and Campbell, Leon (1986) attempted to apply the status attainment, human capital and labour market segmentation models to examine the economic status[4] of recently retired Americans. His study is of particular interest for my analysis, since the author goes beyond most work in this area by simultaneously considering the different explanations of retirement income inequality. His study is mainly concerned with establishing the relative importance of the different factors that affect the economic well being of retirees. Leon utilized the three existing income determination models: status attainment, human capital and labour market segmentation and compared their explanatory power. Specifically, the author was interested in investigating the relative importance of education, work experience, family background, gender, race, hours of work prior to retirement, career patterns, and sector location. The status attainment variables[5] that were included in his retirement income determination model were positively related with the income of retired individuals. The results showed that the labour market segmentation model has the greatest explanatory power.

In summary, the sociological literature on status attainment clearly suggests that certain social background characteristics play a significant role, either directly or indirectly, (through its effects on education and occupational status) in the attainment of income. Social origin variables which include father's and mother's education and father's

[4]Economic status was measured by combining all possible income sources received at retirement.

[5]The status attainment model included the same variables that Henretta and Campbell (1978) used in their analysis, and other job and work-related variables.

occupation are very important sine they are good indicators of the level of economic resources in a family and they capture role modelling and other socialization effects. These same variables were also found to have significant effects on retirement income.

The Human Capital Model

The human capital model, which derives from the neoclassical economic price theory, emphasizes the distribution of income as an outcome of differences in worker productivity. Because workers differ with respect to their characteristics which are known to affect productivity and thus income, this approach stresses the relationship between income, education and on the job training and experience[6] (Mincer, 1970). The basic argument here, is that individuals make investments in themselves by devoting time to studying and getting better education or by investing time to acquiring job-specific skills. Individuals who possess the skills and abilities most valued by society, will be rewarded the most. These skills, it is argued, increase with time in the labour force as a result of training on the job (Kalleberg & Sorensen, 1979:367). In summary, differences in occupational status and income are viewed as a consequence of unequal investments in human capital (Kreckel, 1980).

The implications of the human capital theory for retirement income derive from the argument that individuals with greater stocks in human capital and thus higher pre-retirement income will be in a better position to save for their retirement. Since it is expected that most of these individuals would be working in the "good" jobs, they are more likely to receive pension benefits from their employers.

A considerable amount of research using the human capital model has demonstrated the importance of education in determining income. Mincer (1974) was the first one to operationalize this theory. Using data from the 1959 U.S. Census, Mincer examined the effect of years of schooling and experience on the annual earnings of males aged 25-64. Results showed that "...schooling and post-school investment accounted for close to two-

[6]experience in this model is usually measured by subtracting from age the number of years of education plus six, while education is measured by years of schooling (Boyd & Humphreys, 1979)

thirds of the inequality of earnings of adult, white, urban men in the United States in 1959" (Mincer, 1974:96).

In Canada, research on occupational and income attainments has shown similar results. Overall, a great number of studies have demonstrated that education, work experience and on the job training exert a strong impact on educational and occupational attainments and income (Ostry, 1971; Ornstein, 1983; Boyd & Humphreys, 1979; Ornstein, 1982).

Ornstein (1983) using the 1979 York Quality of Life Survey, found the impact of education and experience to be curvilinear. His findings showed little difference in income among individuals that had "up to some" university education. University graduates however, earned on the average $10,000 more than non-graduates. Mean incomes also rose from $10,749 per year for workers with less than 5 years experience to $18,910 for 15-19 years, and then they fell to $15,160 for 40 or more years of experience.

Regarding gender, an overwhelming number of studies have shown a consistent wage gap between males and females (Ornstein, 1983; Denton & Hunter, 1982; Boyd & Hymphreys, 1979; Treimann & Terrell, 1975). In general, studies show that women on the average earn approximately 40% less of men's average wage (Ornstein, 1983; Boyd & Humphrey's, 1979; Denton & Hunter, 1982). Research findings also indicate that women on the average are disadvantaged by their stock of human capital skills (measured by education, occupation and experience) when compared to men, even though women have similar levels of mean educational attainments and higher mean for first and current occupational status. Income rewards for experience were also found to be much larger for men than for women (Boyd & Humphreys, 1979; Ornstein, 1983).

Ornstein (1983:66) however, found that gender differences in the effects of experience for both men and women disappeared, when measures of the number of years spent with children in three specified age ranges[7] were included in the equation. Ornstein argues

[7]To measure the effects of marriage and child rearing, Ornstein constructed 10 additional variables. For each gender, the five variables measured the number of years the respondent was: married with (a) children 5 years or less; (b) children 13 or less; (c) children 18 or less; (d) no children; and (e) not married with one or

that the usual measurement of work experience (subtracting from age the number of years of education plus 6 is "upwardly biased and less reliable for women than men because of interruptions in women's labour force participation.".

Retirement Income

Maxwell (1985) examined the effects of human capital and labour market segmentation variables on the financial well being at retirement. The data used were drawn from the older men's panel of the National Longitudinal Survey. Only persons who were retired or had stopped working were included in his study. The sample also included retirees who had re-entered the labour market. The dependent variable in this study was income from all sources and included wife's income. The human capital model included education measures as years of schooling, years employed at first job, years employed in longest job. In addition, income at longest job was introduced since according to Maxwell this variable exerts a positive influence on income because of the structure of pension and social security plans.

The findings showed that the human capital variables were good predictors of retirement income. Education exerted the strongest impact on retirement income with only one-third of the effect of education being filtered through job characteristics.

While Maxwell (1986) considered the importance of both human capital and labour market segmentation variables for the study of retirement income, his analysis is limited to men only and this constitutes a flaw in his analysis. In addition, the sample he used to draw his conclusions is biased since it contains an overrepresentation of blacks.

The human capital model utilized by Leon (1986) in his study included the conventional human capital variables. In addition, Leon introduced the square of experience in this particular model to capture the curvilinear effect of experience on wages. Following Mincer (1974), Leon also included the work effort variable which was measured by the

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more children (Ornstein, 1983:48).

number of hours worked in the year preceding retirement.

The findings showed that the human capital model explained nearly 36% of the variance in economic resources in retirement. Education was found to be positively related to retirement income. Although the usual measurement of work experience showed no significant impact, hours worked prior to retirement was a strong explanatory variable. The more hours one worked prior to retirement, the better off he/she was financially after retirement. Leon argues that this variable is a good indicator of one's own work history, job, career, and structural characteristics of the labour market. For example, workers who continue to work fulltime up to the time they retire, are more likely to be working in core industries which offer steadier employment (p. 366).

In the human capital model, as we have seen, education is clearly the most powerful explanatory variable of income differences. The work experience variable which is included in this model poses certain methodological problems. These arise from the fact that work experience is usually measured by subtracting from age the number of years of education plus six. Such a measurement is a poor estimate for women's experience, because of interruptions in women's labour force participation.

Moreover, the human capital model measures an underlying growth of skills which eventually leads to higher productivity. However, as Ornstein (1983:11) argues, this is not necessarily true because wages tend to increase as a result of seniority and not necessarily because of improvement in skills. Ornstein (1983) puts forth a valid argument regarding the measure of work experience. He contends that further research must be able to identify separate aspects of experience, such as total full-time and part-time work experience, the timing and duration of withdrawals from the labour force, career advancements, and seniority with current employers. In addition, measures of the technical and social organization of the workplace are also needed.

Regarding retirement income, education and length of job service, measured by years employed in the labour force were shown to have a strong influence on the economic status

of retirees. The work experience variable measured the conventional way had no effect on retirement income. What these findings seem to suggest is that when studying retirement income, years employed in the labour market is a more useful measurement of work experience, partly because pension benefits are directly related with the length of labour force participation.

Overall, literature review has demonstrated that individual-level characteristics, as conceptualized by the status attainment and human capital models, play an important role in the income determination process. However, because they view this process as resting only upon the individual, they provide a partial explanation of income disparities since they ignore the "extra individual and/or structural constraints such as class barriers or between group differences in opportunity structures" (Horan, 1978:537). Because they do not pay attention to the characteristics of employers and the structure of the labour market, these models are unable to explain gender differences in income. The labour market segmentation model which I will now discuss, has overcome many of the difficulties faced by the status attainment and human capital models. The labour market segmentation model is also very useful for studying income differences, since it demonstrates the importance of sector location in determining the level of income.

Labour Market Segmentation Model

The development of the labour market segmentation theory in the late 60s and early 70s "represents the first systematic attempt to build the effects of differences among employers in a capitalist economy into models of the wage determination process" (Ornstein, 1983:43). Labour market segmentation theorists (Bluestone, 1973; Stonlzenberg, 1975; Horan 1978; Beck, Horan & Tolbert, 1978) have emphasized the needs to consider the existence of labour market structures when explaining income attainments.

The central argument of the labour market segmentation theories "is the proposition that in contemporary western industrialized societies several distinct labour markets[8] operate simultaneously" which offer different employment opportunities and rewards (Krahn, 1973:83; Krahn & Lowe, 1987). Not only are women and ethnic minorities more likely to be working in the disadvantaged labour market, they also have a slim chance for moving into the better jobs.

Although labour market segmentation theories have originated from economics, their "basic ideals are being incorporated in a growing number of studies in the areas of stratification, complex organizations and industrial sociology" (Krahn, 1983:81). Mainly, sociologists (Apostle, Clairmont & Osberg, 1985; Armstrong & Armstrong, 1975; Boyd & Humphreys, 1979; Clairmont, McDonald & Wien, 1980; Clairmont, Apostle & Kreckel 1983; Ornstein, 1983) have adopted the segmentation model in order to explain why women and ethnic minorities with the same education had lower incomes than white males.

In general, the economic structure is conceptualized as divided into two main segments: the core and the periphery sectors. The core sector offers: higher wages, good working conditions, promotion opportunities and job stability, while jobs in the periphery lack all these attributes (Ornstein, 1983; Boyd & Humphreys, 1979). Income and wage differentials are thus explained by arguing that certain minorities and visible groups have a

[8]Labour markets are generally seen "as the arena in which workers exchange their labour power in return for wages, status, and other job rewards" (Kalleberg & Sorensen, 1979:1).

higher probability of being employed in the periphery sector.

There are a number of different core and periphery models within the literature (Beck et al, 1978; Osterman, 1975; Rosenberg, 1975; Bibb & Form, 1977; Averitt, 1968). In general, the core sector is seen as consisting of industries which exhibit high levels of capital intensity, unionization and high profit margins. Industries in the periphery sector are small, labour intensive, and have low levels of unionization and low profits. Sometimes, a third government sector is added, since this sector is assumed to be very similar to the core sector in terms of employment (Averitt, 1968).

Leon (1985), Maxwell (1985), and McDonald and Wanner (1987) have argued that the labour market segmentation model has great potential for explaining income differentials among the retired. For example, core workers are more likely to receive private pensions and less likely to need other government transfers such as welfare. Overall, we would expect core workers to fare better at retirement than periphery workers who are less likely to receive private pensions.

Using the 1979 York Quality of Life survey, Ornstein (1983) found fairly large income differences among the various industrial categories. Because of this, the author was unable to divide the industries into core and periphery sectors and thus measured sector location by eleven unaggregated industrial categories. This eleven category division explained only 6% of the variance in the employment income of part-time and full-time workers. This difference did not conform as well as the exponents of labour market segmentation theories would argue. Interaction with gender, however, showed that "there is a tendency for the sectors with greater returns for education also to give greater returns for experience and to exhibit less discrimination against women" (Ornstein, 1983:83). Returns for education and experience were found to be higher in the state sector, farming and fishing, and lower in transportation, utilities, construction, and personal service.

Boyd & Humphreys (1979) used Marfel's classification of core and periphery sectors to examine sex differences in income across the two sectors. Certain important findings

emerged from their study. First of all, the data did not support the argument that women are overrepresented in the periphery sector; they found that in their sample, 52% of women workers worked in core industries, compared to 48% of men. This is due to the fact that more women tend to work in public administration. According to the authors the near equal distribution of males and females across the core and periphery sectors "indicate that the differential location of men and women into the core-periphery sectors does not account for income differences" (Boyd & Humphreys, 1979:38).

The results of their analysis contradicted the expectation that women in the core are disadvantaged compared to men; women actually received on the average $144.00 more than men for each year of education. This finding however, is explained in part by the fact that a large percentage of female workes in this sample were employed in the public administration industry[9] where monitoring of sex inequities is stronger than it is in the private sector (Boyd & Humphreys, 1979:44). Compared to workers in other core industries or in the periphery, males and females in the public administration industry had similar rates of return to their education and current occupational status. Tests for interaction, however, showed that compared to females, males in the other core industries get higher returns for their education, experience, and current occupational status.

Retirement Income

McDonald and Wanner (1987:258) used the labour market segmentation model of Beck, Horan and Tolbert (1980), in a study of retired[10] Canadian men and women. The data for the study were drawn from the 1981 Census of Canada. Overall, the findings showed that core men and women tended to retire earlier and were better off financially than their counterparts in the periphery sector of the economy. Also, core workers were more likely to receive private pensions and less likely to need other government transfers

[9] ...of all the workers employed in the core industries, 30.5% and 57.6% of the males and females respectively are in the public administsration industry (Boyd & Humphreys, 1979:44).

[10] The measure of retirement in this study was the number of weeks not worked during the year.

such as welfare. The findings however, indicated gender differences in retirement income in both core and periphery sectors, with women being generally more economically disadvantaged than men.

Using Tolbert, Horan and Beck's dichotomy model of core-periphery sectors, Leon (1985) showed the importance of the labour market segmentation model[11] when explaining economic resources in retirement. Sector location was found to exert a positive influence on retirement. The labour market segmentation model explained 46% of the variance in retirement income.

Similarly to Leon, Maxwell (1985:61) found that labour market segmentation variables were good predictors of social security and other pension income, but poor predictors of interest/dividend income. According to Maxwell the strength of the labour market segmentation variables is derived from the fact that an individuals's level of pension income depends on whether or not he is working in the core or periphery sectors of the economy. Findings also showed that individuals who work in unionized industries or in the government are better off financially than those who work in non-unionized jobs. This difference Maxwell attributed to the fact that individuals working in unionized industries are more likely to have private pension plans.

Women's and men's retirement income[12] was also examined by O'Rand and Landerman (1974). Data for the analysis were taken from the Social Security Earnings record and from the first two waves of the Longitudinal Retirement History Study. Regression analyses performed separately for women and men aged 58-63 revealed that "advantageous locations in the occupational structure, which include higher status jobs, higher wages, and favorable industrial contexts, are the most important influences on retirement income" (p.40). Women's pensions and social security incomes are adversely affected by family and childbearing activities, with the dollar cost of each child substantially

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[11]This model included demographic and family background variables, education, industrial location, occupation and union membership (Leon, 1984:30).

[12]Retirement economic status is measured by including income from pensions, and assets from stocks, savings, homes, business, and other real estate sources (O'Rand & Landerman, 1984:30).

larger for private or government pensions than of social security. Each child and each year of delay in full-time labour force participation subtracts from women's occupational status and, in turn, from their retirement incomes. Unlike women, men receive more pension and higher estimated annual retirement incomes, from social security and pension sources.

In summary, literature review of income attainments has shown that labour market segmentation variables are good predictors of retirement income for two important reasons: (a) they can explain directly the differential access to private pensions and (b) they can explain differences in pension incomes because they are powerful predictors of life time profiles and work histories (Leon, 1983:353).

Since this particular model attributes income and retirement income differences to the structural features of the economic system, it complements the individual-level explanations offered by the status attainment and human capital models. The incorporation of both structural and individual explanations of income inequality increases the explanatory power of both income and retirement income determination models.

This is clearly demonstrated by Ornstein (1983) who attempted to determine the relative importance of the different explanations of job income differences. The combined model in his analysis which included the conventional status attainment and human capital variables, social class, sector location, and gender explained 40% of the variance in income; and the addition of interaction effects[13] increased the explained variance to 50% (p.63). In the full regression model, three different groups of variables had roughly equal independent effects on income[14]: the human capital and status attainment variables, gender and its interactions, and social class (measured using Eric Olin Wright's 1976 neo -Marxist framework). Labour market segmentation factors had only about a third as much effect as any of these groups of variables.

[13] a total of 48 multiplicative interaction terms were computed between education, experience, and gender on the one hand, and education and experience on the other (Ornstein, 1983:63).

[14] Ornstein's results are in agreement with Leon's (1986) argument that both individual-level and structural explanations should be included in any income determination model.

Similarly to Ornstein, Leon (1986) explored the explanatory power of the status attainment, human capital, and labour market segmentation models. His analysis intended to identify variables within these models which can explain economic status differences among the retired (p.353). His combined retirement income determination model which included all the significant variables[15] from the status attainment, human capital, and labour market segmentation models explained 49.2% of the variance in retirement income. According to the author, this composite model "could be characterized as representing a structurally based capital attainment life span process" (Leon, 1986:369). Concluding, Leon comments that future work on retirement income should attempt to build upon this exploratory synthetic model (p.,367). Unfortunately, Leon (1986) did not examine the effects of the different factors on the various financial sources in retirement, since his dependent variable "economic status" was composed of all possible retirement income sources.

C. Summary

Within this section, I have attempted to review the status attainment, human capital, and labour market segmentation models and their empirical support. Included in this review were empirical studies which have attempted to explain retirement income differences by utilizing these three theoretical perspectives. In reviewing the different theoretical perspectives I have established the advantage of including the various explanations of retirement income differences into my retirement income determination model. Also in reviewing the different empirical studies on retirement income I have confirmed the need for a theoretically guided empirical analysis which seeks to identify the determinants of retirement income in Canada. As shown, this type of analysis is absent from the Canadian literature. Apart from being theoretically interesting, this topic has also significant policy implications.

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[15]These variables were discussed earlier.

III. RESEARCH MODEL

A. Introduction

This research project is an extension of Ornstein's study of income differentials among Canadian men and women, since it examines retirement income differences using the same data source. Similarly, the analysis here will follow the historical tradition of research as discussed in Chapter 2. It will begin with the status attainment and human capital models and will then proceed to use them as a baseline to which will be added the effects of sector location, and other work and retirement-related variables.

The three income determination models on which this analysis is based approximate Ornstein's (1983) as well as those presented in previous studies and are outlined below.

B. Composition of the Model

Status Attainment Model

The status attainment model will be composed of three variables used by Ornstein (1983) in his study of the determinants of job income of full-time and part-time workers: father's and mother's education and fathers occupation. In addition, it will include two variables from Henretta and Campell's (1978) study of the determinants of pre-retirement and post-retirement incomes, namely marital status and number of children.

Human Capital Model

Three human capital variables will be included such as respondent's education and occupation[16] and years worked with last employer. Years employed with last employer is included in place of work experience. Despite its limitations this variable can give us an idea about the career patterns of individuals working in different jobs and labour markets.

[16]As discussed in the theoretical section these variables are common to both status attainment and human capital models.

We would expect for example, that individuals who work in core industries to have steadier career patterns and thus to have worked longer for the same employer. Because the formulae used to calculate most pensions is based on length of plan membership and earnings, job tenure affects the level of pension one receives at retirement.

Sector Location

The only labour market segmentation variable in this model is sector location. This study intends to use Boyd & Humphrey's (1979) dichotomy model of core-periphery sectors, since this model is a simpler model to analyze. Ornstein (1983) has been unable to divide industries into core and periphery, using the 1979 York Quality data set, without masking large industrial wage differences. This, however, may not be true for retirement income, since "core" workers irrespective of their earnings, are more likely to receive private pensions and therefore more likely to be better off financially when they retire.

If Boyd & Humphrey's (1979) dichotomy model of core and periphery does not yield any significant results, then Ornstein's (1983) sectoral strategy will be adopted. This means that the different industries will not be aggregated, rather the effect of each industrial category will be examined separately.

Other Work-Related Variable

This variable will also be contained in the model as additional information regarding sector location since it allows for a comparison between owners and employees. The difference between the government question and the labour market sector categories is that the former is based on the respondent's self-placement, while the latter on a classification of the industries.

Because of the way pensions are structured in Canada, we can infer that business owners have higher inyestment income and lower pension income than non-owners. This is because business owners are less likely to contribute to private pension plan

On the other hand, government workers are likely recipients of private pension and thus we expect these individuals to have higher pension income than non-government workers.

Retirement-Related Variables

Certain other retirement-related variables are also included in this retirement income determination model, since these variables are also expected to influence retirement income and especially pension income. These are: private pensions/retirement benefits received from employers. We assume, for example, that individuals who receive private pensions/retirement benefits to be better off in terms of pension income, mainly because this pension income would supplement other pensions (OAS, Q/CPP). In addition, individuals receiving private pensions are also better off in terms of investment income, since as we saw in Chapter 1, these individuals tend to work in the better jobs/industries.

The level of income received from these pensions is also influenced by whether or not they are indexed to make up for inflation. Those individuals whose pensions are fully indexed to make up for inflation are expected to have higher pension income than those whose pensions are partly or not indexed.

The age at which an individual retires is also expected to have an effect on the level of income received at retirement. The importance of this variable stems from the fact that most pension plans have established a limit before which a person cannot receive any benefits (except in cases of disability, some plans might pay reduced benefits at an earlier age).

Other control variables

In addition, this model of retirement income will contain two control variables: gender and age.

C. Summary

Chapter III presented the retirement income determination model used in this analysis. The variables included in the model were theoretically defined, and the hypotheses to be tested were outlined. Chapter IV will include the operational definitions of the variables in the research model, a description of the data set, as well as the statistical methods adopted in this project.

IV. DATA AND METHODS

A. Data Source

The data for this research study are obtained from the "Social Change in Canada" project. This survey was selected because, unlike any other Canadian survey to date, it contains very important questions on retirement which can be used to study income differences among the Canadian retired population. Another advantage for using this survey is that the same data were also used by Ornstein (1983) to estimate an earnings model for respondents in the labour force.

Even though the survey is geared toward the general population and thus the number of questions on this topic is limited, in relation to other general surveys like National Opinion Research Centre's (NORC) and the General Social Surveys (GSS), this survey is still the most appropriate for this research problem.

B. The Sample

The "Social Change in Canada" project conducted three national panel surveys in 1977, 1979, and 1981. The sample was designed to be representative of all residents of Canada, 18 years and over at the time of study. Excluded from the sample were remote regions of Canada, native reservations and institutionalized groups.

Standard probability methods were used to select a random sample of addresses from lists of all the addresses in a representative sample of Enumeration areas. The complete list of 1971 Census Enumeration Areas was stratified to increase the efficiency of the sample. In designing the sample two important dimensions, regionalism and urban-rural differences, were used to stratify the Canadian population. The country was divided into

five regions - Atlantic Canada, Quebec, Ontario, the Prairies, and British Columbia. Each region was further stratified by combining Enumeration Areas into four urban size groups: 1) over 100,000 population; 2) 10,000 to 99,999; 3) 1,000 to 9,999 and 4) less than 1,000 population.

The three largest Census Metropolitan Areas (Montreal, Toronto and Vancouver) were further stratified on a geographical basis: central city, suburbs and fringe. In addition, Montreal and Toronto were stratified, using factorial ecology to define relatively homogeneous strata along the ecological dimensions of social class, life cycle and ethnicity.

A systematic sample of addresses was selected and for each sampled household a list of eligible members was recorded. From this list, one respondent was chosen randomly from all those eligible in the household.

The surveys constitute in part a three-wave panel, which is supplemented in the second and third years by the addition of new respondents. The additional selections include previously ineligible respondents who, by the time of the second or third survey had moved into a dwelling at an originally selected address or turned eighteen years of age and therefore became eligible. Each of the three waves of the survey includes a national probability sample of approximately 3300 Canadians.

Most of the questionnaire items dealt with the quality of life in Canada. There were questions on a variety of subjects like: employment, family relationships, political attitudes, trade union rights and housing to mention a few. Included were the usual demographic variables such as gender, age, education, ethnicity, occupation, religion, and income.

The data for this study of retirement income sources will be taken from the 1979 survey since this particular year has a number of useful variables which are not available in the 1977 and 1981 surveys. Even though these data are almost 11 years old, they are still valid for my analysis since the financial sources of retirement in Canada have remained virtually unchanged.

This study will extend Ornstein's income determination model to examine income differentials among Canadian retirees. Accordingly, the analysis here will explore the relative importance of the different factors known to affect different economic resources in retirement. The retirement income determination models will closely approximate Ornstein's model. Several variables, however, will be excluded from this analysis, because these particular data are not available for the retired population. These variables are: social class (measured according to Eric Olin Wright's 1976 neo-Marxist framework), unionization, and firm and employer characteristics.

The analysis is limited to those individuals who identified themselves as retired. A more detailed discussion on the retired sample follows in the results section.

C. Operationalization of the Variables

Dependent Variables

Leon's (1985) and Maxwell's (1986) analyses of retirement income have indicated that the determinants of one type of economic resource in retirement differ from those which determine another. Based on these results, this analysis utilizes two[17] dependent variables each one representing a different retirement income source. These variables are: pension and investment income.

Pension Income

Pension income data are derived by asking sampled respondents about their earnings from job or business in 1977 and 1978 (this information was obtained by two separate questions).

Respondents were requested to check on 23 precoded categories.

Analysis showed that the 1977 and 1978 earnings from job or business were highly correlated (.8797) indicating that they measure the same income source. Consequently, a new variable was created which represented the average of these two variables.

Because of the way these questions are formulated it is difficult to pinpoint the exact

[17] The initial intention was to use three independent variables: pension, government and investment incomes. However, preliminary analysis showed age to be the only determinant of government income. This is because the Old Age Security Pension (OAS) is a flat-pension benefit. Moreover, probably most respondent's did not have the chance to contribute too many years to the Canadian/Quebec Pension Plan (CPP) since this pension was introduced in 1966. For more details, see section on pensions. Also is not clear whether respondents defined CPP funds as government or investment income.

source of this income. Unfortunately, researchers gave insufficient thought or detail to the problems respondents might have in keeping separate the different sources of retirement income, i.e., earnings from full-time/part-time work after retirement, CPP income (which some might have defined as government income and others as job income because of employer contributions), private pension (which may be defined as job or pension income), or RRSPs (which can be defined both as pension or investment income).

Preliminary analysis however, suggests that most of the respondents gave their pension income when answering these questions. To eliminate employment earnings for those individuals who worked during 1977 and 1978 the analysis for this particular income source will include those respondents who retired more than three years. There were 254 respondents in this category, 142 were males and 108 were females. The mean pension income for males was $2,868.5 and the standard deviation $5,629.2. For females the mean was $1,503.9 and the standard deviation $3,430.4.

Investment income

Investment income[18] is obtained by asking the respondents about income received from any other sources such as retirement plans, investment profits or interest on savings and mortgages.

Again respondents were asked to check one of 23 precoded categories. Mean investment income for males is $4,419.0 and standard deviation $8,763.5. For females, mean investment income is $3,402.1 and standard deviation $5,022.5.

Both pension and investment income variables were recoded to make the categories correspond to dollar amounts.

Histograms of both incomes are presented in Tables 1 and 2. It is important to note the

[18]Because of the definitional problems discussed earlier, some respondents might have included private pension income here, while others could have reported it under "job income".

radically skewed nature of both pension and investment income variables. This problem as we discussed above is the result of definitional difficulties with respect to income source.

TABLE 1

HISTOGRAM OF PENSION INCOME

MIDPOINT		(EACH X= 5)
0.	164	+XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
2083.3	18	+XXXX
4166.7	16	+XXXX
6250.0	4	+X
8333.3	7	+XX
10417.	5	+X
12500.	7	+XX
14583.	1	+X
16667.	3	+X
18750.	2	+X
20833.	1	+X
22917.	1	+X
25000.	2	+X
MISSING	67	
TOTAL	298	(INTERVAL WIDTH= 2083.3)

*missing due to non-response

TABLE 2

HISTOGRAM OF INVESTMENT INCOME

MIDPOINT		(EACH X= 4)
0.	130	+XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
3846.2	46	+XXXXXXXXXXXX
7692.3	20	+XXXXX
11538.	13	+XXXX
15385.	5	+XX
19231.	3	+X
23077.	2	+X
26923.	1	+X
30769.	2	+X
34615.	0	+
38462.	0	+
42308.	0	+
46154.	1	+X
50000.	0	+
MISSING	74	
	1	> 50000.
TOTAL	298	(INTERVAL WIDTH= 3846.2)

*missing due to non-response

Independent Variables

Status Attainment and Human Capital Variables

Age

Age was operationalized using the continuous age variable. The age of the respondents for the total sample ranges from 46 to 91 with the majority of respondents (63.3%) being between the ages of 64 and 74. The ages of respondents who had retired for more than 3 years ranges from 53-91 with the majority of respondents again being between the ages of 64 and 74 (60.2%).

Gender

Males were coded 1, and females were coded 0. There were 169 males and 129 females in the total retired sample, while there were 146 males and 108 females who had retired for more than 3 years. Only those females who had participated in the labour force are included in this analysis.

Marital Status

Never-married respondents were coded 1, and ever-married respondents were coded 0. There were 30 never-married and 267 ever-married (specifically there were 140 married; 107 widowed, 7 divorced and 13 separated).

Number of children

This status attainment variable is operationalized in answer to this question:

Do you have any children? (If yes) How many?

Sixty-nine respondents had no children, while the majority had between 1 - 3 children (66.8%).

Family Background

Originally, family background was to include three measures: father's and mother's education and father's occupation. However, because father's and mother's education are highly correlated (.6927) and to avoid the problem of multicollinearity, it was decided to use only mother's education since preliminary analysis demonstrated that this variable has the strongest effect on both incomes as compared to father's education .

Information on mother's education was obtained by asking the respondents the highest level of schooling completed by their mother. Answers were coded from 01 to 10 where 01 represented those respondents whose mother had no schooling and 10 those whose mother had a professional degree or doctorate.

For easier interpretation, these educational categories were recoded to reflect actual years of schooling 0,6,8,11,12,13,14,16,18,20. To deal with this large number of missing cases an arbitrary value (zero) was given to the respondents missing on this variable. Next a dummy variable was created by assigning a one to respondents missing on mother's education and a zero to the rest. Both variables were then included in the multiple regression. This strategy has the advantage of limiting the analysis of mother's education to just those respondents who report this information but includes both missing and non-missing respondents in the analysis of the effects of the other independent

variables in the regression.

Father's and Respondent's occupation

Father's and respondent's occupational status are measured in Blishen scores[19] (Blishen & McRoberts) which like the Duncan (1961) socioeconomic index scores (S.E.I.) are considered to be socioeconomic scores of occupations. The scale incorporates aggregate data for education and income for each occupation which are to predict socioeconomic status. These variables represent the father's and respondent's main occupations.

Respondent's education

Respondent's education is operationalized by number of years of schooling completed by respondent.

The number of years of schooling ranged from 2-21 with the majority of respondents having between 7-12 years of schooling (61.4%).

Years worked with last employer

This human capital variable, used as a proxy to experience, is operationalized by asking respondents the number of years they had worked for their last employer.

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[19]There has been some concern regarding the usefulness of these scores for analyzing the female occupational structure. For the most part, women have higher education and lower incomes than men in the same occupations. These differences therefore, are obscured when income and educational measures are combined (Wilson, 1986). However, the scores have been widely utilized for measuring occupational status by many Canadian researchers, including Ornstein (1983), whose model of income determination is replicated here for the study of retirement income.

Labour Market Segmentation Variable

Sector Location

This labour market segmentation variable is operationalized in answer to this question: In what short of business or Industry did you work?

The original intention in this analysis was to divide the industries into core, periphery and state sectors following Boyd & Humphreys (1979). These authors used four criteria to categorize the industries: (1) 4-firm concentration ratios (assets); (2) 100 -firm concentration ratios (assets); (3) measure of inequality of assets (4) shares of sales accounted for by the 4 largest corporations.

Manufacturing industries were classified differently. This is because manufacturing industries exhibit considerable variation in the degree to which they operate within a concentrated market and are therefore difficult to classify. A manufacturing industry in Boyd & Humphreys' (1979:65) study was located within the core or periphery sector depending on whether its concentration level is greater than or less than 50.0 respectively.

In addition, those workers whose wages and working conditions are controlled by the state, were classified in the Public Administration Industry in the core sector.

Boyd and Humphrey's (1979) classification of core and periphery industries is shown in Table 2.

In our retired sample, 62 males and 38 females worked in the core industry, while 102 males and 89 females worked in the periphery.

Preliminary analysis showed that sector location[20] had no significant impact on both pension and investment income. The decision was then to proceed with unaggregated

[20]Operationalized using Boyd & Humphreys (1979) classification scheme of core and periphery.

industrial categories following Ornstein's (1983:50) sectoral strategy, although the criteria used to divide industries are borrowed from Boyd & Humphreys (1979).

Industries were divided into the following major categories: agriculture, forestry, transportation (including communication and other utilities), trade, finance (including insurance and real estate), community (including business, and personal service industries), public administration. Manufacturing industries were divided into three categories according to whether the largest four firms in each industry accounted for up to 25 percent, 26 to 50 percent, or more than 50 percent of the shares of the industry's shipments[21] (Boyd & Humphreys, 1979:67).

Table 4 shows the distribution of male and female respondents into the different industrial categories.

[21] Accordingly, manufacturing industries were divided into: low, medium, and high.

TABLE 3

CLASSIFICATION OF CORE AND PERIPHERY SECTORS

Core Sector - High Concentration Industries

Utilities, Transportation, and Communication
Finance, Insurance, And Real Estate
Mining
Public Administration
Manufacturing I

Periphery Sector - Low Concentration Industries

Trade
Construction
Personal Business, Community Services
Agriculture, Forestry, And Fishing
Manufacturing II

TABLE 4

Percentage of Males and Females in Various Industrial Categories

	Males %	Females %
Agriculture	18.3	5.6
Forestry	3.0	0.8
Mining	3.0	-
Low Manufacturing	3.0	10.4
Medium Manufacturing	13.4	4.8
High Manufacturing	11.0	-
Construction	3.0	0.8
Transportation	7.3	2.4
Trade	12.2	21.6
Finance	3.7	3.2
Community	15.9	44.0
Public Administration	6.1	6.4
Number	164	125

Other "Work-Related" Variables

As discussed in Chapter 3, the other "work-related" variables deal with ownership and self-reported government employment. These variables allow for a comparison: (1) between respondent's who own their own business and those who do not (2) government workers as opposed to non-government workers.

Answers were coded so that 1 represented those who owned their own business, 2 those who partly owned a business, 3 those who worked in a family owned business, 4 government workers and 5 for those who worked in none of the above categories.

Two dummy variables were created. Categories 1 through 3 were coded 1 to represent business owners, while categories 4 through 5 were coded 0 for non-owners. Government workers were coded 1, while categories 1-3, 5 were coded 0 to represent non-government workers.

Retirement-Related Variables

The last set of variables classified as retirement-related variables were obtained by asking respondents whether they receive any pension or retirement benefits from their employers.

Respondents who answered yes to this question were coded 1 and those who answered no were coded 0. There were 133 respondents who received pension or retirement benefits from their former employers, 164 did not receive any and 1 did not answer.

In addition to the above, respondents were also asked whether their pensions were indexed to make up for inflation. Those respondent's whose pensions were fully indexed to make up for inflation were coded 1, and the rest of the categories were coded 0. Retirement benefits were fully indexed to make up for inflation for 19 respondent's, 64 respondent's had their pensions partially indexed, and 49 had the same amount regardless of inflation.

D. Methods of Analysis

The method of analysis in this study consisted of bivariate and multiple regression analyses, one way analysis of variance, and analysis of covariance.

Bivariate and multiple regressions were performed to see whether an independent variable might influence either pension and/or investment incomes.

Since regression analysis assumes that the independent variable(s) and dependent are linearly related, tests for non-linearity were performed. To test for non-linearity, analysis of variance (anova) was performed on the residuals[22] of the dependent variable. Significant differences among the residuals of the dependent and independent variables indicates a non-linear relationship. If a non-linear relationship is detected, the square of the independent variable (non-linearly associated with the dependent variable) is added to the original bivariate regression when the pattern of differences among the residual means indicates a quadratic relationship. Given significant differences among the residuals, a quadratic relationship is indicated when one of two patterns among the differences is obtained: relatively large negative values in the extreme categories of the independent variable and positive values in the middle categories, or relatively large positive values at the extremes with large negative values in the middle category. Once this is observed, the square of the independent variable (the one curvilinearly related to the dependent variable) is introduced into the regression to see whether it is significant. Then the residuals from the new regression are saved and an analysis of variance is performed again on the residuals to see whether the squared term captures all of the non-linearity.

Because the literature suggests the possibility of interaction effects, tests for interaction were also conducted in this analysis. Interaction refers to the situation in which the nature of the relationship between the dependent variable and the independent changes for

[22]Residuals are used because the linear effect is removed and so it is easier to observe the non-linearity.

different levels of the control variable(s) (Agresti & Finlay, 1986: 415). Analysis of covariance allows us to diagnose possible interaction of the control variable(s) when all other independent variables are present in the model. When using analysis of covariance to detect interaction, the researcher tests the null hypothesis of equal slopes across the categories of the control variable. He/she suspects interaction when the null hypothesis is REJECTED. If the null hypothesis is rejected, a further test for interaction is warranted. This test involved introducing the cross-product term for each pair of variables assumed to be involved in the interaction. If the cross product term is significant, we would have interaction. It should be noted that lower-order relatives of significant higher-order terms are included in the regression regardless of the statistical significance of the lower-order terms.

The level of significance used in this project is 0.05. We use 0.05 because of the relatively small sample size. In addition, a one-tailed test is also used where we have predicted the direction of the relationship and a two-tail test where we have not - e.g., some of the interactions. The regression slopes reported in this analysis are unstandardized slopes.

V. RESULTS OF THE DATA ANALYSIS

A. TESTING THE STATUS ATTAINMENT AND HUMAN CAPITAL MODELS ON PENSION INCOME.

Table 5 shows the results of regressing pension income on the status attainment and human capital variables.

Demographic Variables

The slopes of the demographic variables age and gender are significant. The negative slope of age (-193.40) means that pension income decreases as age increases. Specifically, for each year increase in age, pension income decreases by $193.40. Since gender is represented by a dummy variable (1=men, 0=women), the significant positive slope ($1347.7) indicates that on the average, men have more pension income than women; men on the average have $1347.7 more pension income than women. The other demographic variables such as number of children, marital status, and age at retirement are not significant. Of the two significant demographic variables, age explains the highest proportion of the variation in pension income (9%), followed by gender (2%).

Tests for non-linearity were conducted for age[23]. The simplest method to model non linearity is to include the square term of the independent variable in the original bivariate regression. Analysis of variance on the residuals of this regression demonstrated no

[23]Analysis of variance with the residuals of pension income and age indicated a non-linear relationship between the residual means of age and pension income.

TABLE 5

BIVARIATE REGRESSIONS
PENSION INCOME ON STATUS ATTAINMENT AND HUMAN CAPITAL VARIABLES

INDEPENDENT VARIABLES	SLOPES	
	UNSTANDARDIZED	STANDARDIZED (r)
Age	-193.40*	-.30845
Gender	1347.70*	.14477
Marital Status	212.23	-.03904
Number of children	-69.01	-.03709
Age at retirement	-12.17	-.01744
Mother's education	251.89*	.17183
Father's education	163.71*	.12930
Father's occupation	40.86*	.13866
Respondent's education	134.94	.11500
Respondent's occupation	50.49*	.15780
Years work with last empl.	44.97*	.14293

* Significant at $p < 0.05$, one tail test

significant differences among the residual means. This indicates that the squared term was sufficient to capture the non-linearity. The square term of age was positive, which means that while pension income decreases with age, its effect decreases with age. More detailed discussion will be provided later.

Because of its positive correlation with age and age square[24], the demographic variable age at retirement was introduced into the multiple regression of pension income on age and age square. The results showed this variable to be positive ($131.50) and significant. This indicates that on the average pension income increases the older an individual retires . For each year increase in the age at which an individual retires, pension income increases by $131.50. The inclusion of this variable increased the R-square from 14% to 17%.

Interaction tests involving gender, age and age at retirement were performed to determine whether these demographic variables interact in their effects on pension income. Analysis of covariance showed that the slopes of age differed significantly for males and females. Consequently, when the interaction term of gender and age was added to the multiple regression it is significant. This interaction term indicates that the negative effect of age is stronger for males than it is for females. In order to interpret this interaction, a means table, Table 6, was created. This table shows the fitted means of the dependent variable for both males and females at selected ages. It becomes clear that for men the decrease in pension income is more drastic than it is for women especially after age 65. For example at age 60 males have on the average $7,876.00 in pension income, while women of the same age have only $3,410.00. This difference is lessened for retirees who are 70 years old. At this age, the pension income of males is on the average $895.75, while for females is $456.50.

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[24]There was a .4170 correlation between age at retirement and age square, and a .4270 correlation between age at retirement and age.

TABLE 6

FITTED MEANS OF PENSION INCOME FOR MALES & FEMALES IN SELECTED AGES

Age	Males *	Females *
60	$7876.00	$3410.00
65	$4681.75	$1917.50
70	$2355.00	$ 933.00
75	$ 895.75	$ 456.50
80	$ 304.00	$ 488.00

* The means are calculated with values from the regression model of pension income on age square, gender and the interaction terms age and gender, and age square and gender to capture the different effects of age squared and gender the cross product of gender and age square was included for creating this table. The formulae used to calculate these means is:

$\hat{y}_1$ (men) = 60944 (intercept) - 1568.5(age) + 52928(men) - 1239.1(age)+7.19$(age)^2$ + 10.16$(age)^2$

$\hat{y}_2$ (women) = 60944 (intercept) - 1568.5(age) + 10.16$(age)^2$

Interestingly,the gap between men's and women's pension income disappears the older both sexes become, women at age 80 having a little more pension income than men, since the fitted means show that males of this age on the average have $304.00 compared to their female counterparts who have $488.00. The fitted means also illustrate the non-linear relationship between age and pension income. We can see, for example, that the most dramatic decrease in pension income occurs at age 75 for both men and women.

In addition, analysis of covariance of age at retirement and gender showed that the slopes of pension income on the age at retirement variable differed significantly for males and females. The interaction term of gender and age at retirement is significant and positive (294.22) when included in the multiple regression. The combined effects of age, age square, age at retirement and their interactions with gender explained 25% of the variation in pension income.

These findings reveal that the positive effect of age at retirement is stronger for men than it is for women. In order to interpret this interaction, a fitted means table, Table 8 [25], was created using the regression slopes shown in table 7. Examining this table we can see that: (1) the younger an individual is and the later he/she retires the better off he/she is in terms of pension income. For example, a 70 year old male who retired at age 65 has considerably lower pension income ($628.3) than his co-hort who retired at age 70 ($2411.8). A 65 year old retiring at 60 has higher pension than his cohort who retired at 55 ($4287.8). (2) Even though women's pension income is affected by both age and age at retirement, the differences are not as pronounced as they are for men.

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[25] A peculiarity with Table 8 is the negative pension income for 75 years old men who retired at age 60. This result probably occurs because there are no cases in this category. Future research, however, that includes the increasing number of early retirees who survive into their eighties will surely yield a change in the parameter estimates, so that these negative values no longer occur

TABLE 7

Pension Income on Demographic Variables

INDEPENDENT VARIABLE	SLOPES
Age	-2821.4*
Age square	18.87**
Gender	8391.9
Gender by age	-364.64**
Age at retirement	62.48
Gender by Age at retirement & gender	294.22**
Constant	101860
R-square	.25130

* Significant at $p < 0.05$, one tail test

** Significant at $p < 0.05$, two tail test

TABLE 8

FITTED MEANS OF PENSION INCOME FOR MALES & FEMALES IN SELECTED AGE AND AGE AT RETIREMENT

Age	Age at retirement	Males	Females
75	60	-1155.1	147.6
75	65	628.3	460.0
75	70	2411.8	772.4
70	60	1094.0	573.9
70	65	2877.7	886.2
65	55	2564.5	1632.1
65	60	4287.8	1944.5

These fitted means were calculated with values from the regression model of pension income on age, age square, gender and the interaction terms age and gender and age at retirement and gender. The formulae used to calculate these means is:

$\hat{y}_1$ (men) = 101860 (intercept) - 2821.4(age) +18.87(age)^2 + 8391.9(dmen) +364.4(age at retirement)+ 62.48(age at retirement)+ 294.22(gender by age at retirement)

$\hat{y}_2$ (women) = 101860(intercept) - 2821.4(age) + 18.87(age)^2+364.4(age at retirement)

Family Background Variables

The sociological literature on status attainment suggests that family background plays a significant role either directly or indirectly (through its effects on education and occupation) in income and retirement income. The bivariate regression of mother's education and pension income supports the findings of previous research. The significant positive slope (251.89) means that the higher the mother's education the higher the respondent's pension income . The positive significant slope means that for each year increase in mother's education, the respondent's pension income increases by $251.89.

Father's occupation has also a significant and positive (40.86) effect on respondent's pension income. Specifically, for each unit increase in the Blishen scale of father's occupation, respondent's pension income increases on the average by $40.86. Since mother's education remained significant when included in the multiple regression, while father's occupation was not , it was decided to exclude the latter from the final model.

Adding mother's education into the multiple regression containing the demographic variables and their interactions with gender, mother's education is marginally significant (.0550) and positive (161.53) increasing the explained variance from 25% to 26%.

Cuneo & Curtis, 1975; Boyd 1985; Treimann & Terrell, 1975, have found maternal education to have more influence on the educational attainment of daughter's than of son's. However, analysis of covariance showed that the slopes of pension income on maternal education did not differ significantly for males and females. Consequently, when the interaction term of mother's education and gender was included into the equation it was not significant.

Respondent's Education

Contrary to previous research on income inequalities (Ornstein, 1983; Boyd &

Humphreys 1979; Maxwell, 1985; Leon, 1985), the results in this study do not support their findings that education has a strong positive effect on income and retirement income attainments. The bivariate regression slope of pension income on education was marginally significant even though it was in the predicted direction (134.84). This variable alone explains only 1% of the variation in pension income. Controlling for the effects of the demographic variables, their interactions with gender and mother's education, respondent's education failed to reach the required level of significance. Controlling for the effects of the other independent variables, education had an negative effect on pension income but this relationship was not significant.

Ornstein (1983) has found the effects of education on income to be curvilinear. To test this, the relationship of respondent's education and pension income was tested for non-linearity. While analysis of variance with the residuals of pension income and education indicated a non-linear relationship between the residual means of pension income and education, the square term of education was not significant when added to the multiple regression.

Tests for interaction between gender and respondent's education was also performed, but analysis of covariance showed that the slopes of pension income on education did not differ significantly for males and females.

Respondent's occupation

Consistent with the literature on status attainment and human capital models (Ornstein, 1983, Leon 1985; O'Rand & Landerman, 1984), the respondent's occupational status has a significant positive effect on pension income. The bivariate regression of pension income on occupation was significant and positive (50.49). The positive slope means that the

higher the prestige score in the Blishen scale of respondent's occupation, the higher the pension income of the respondent and so for each unit increase in the Blishen scale of respondent's occupation, pension income increases by $50.49.

To test the findings of previous research which have indicated that gender and occupation interact in their effects on income (Armstrong & Armstrong, 1979; Ferber & Lowry, 1976; Fox & Fox, 1981), a test for interaction was performed. The analysis of covariance however, indicated that the slopes of pension income on respondent's occupation did not differ significantly for males and females. Consequently, when the cross product term of gender and occupation is introduced into the multiple regression, it is not significant.

When respondent's occupation was added to the multiple regression it is significant and positive ($44.74). This indicates that respondents occupation has a significant positive effect on pension income even when controlling for the effects of the other variables. When this variable is included into the multiple regression, the effects of the demographic variables still remain, but mother's education is no longer significant. This means that family background affects respondent's pension income mainly through its effects on respondent's occupation.

Years worked with last employer

As discussed in the theoretical section of this thesis, status attainment and human capital theories[26] share two main common variables: education and occupation. The effect of these two variables has already been examined. The only additional variable tested for the human capital model is years worked with last employer. This variable as mentioned in the

[26]Despite this commonality, the theories are theoretically distinct. The theoretical section of this thesis discusses their similarities and differences.(pg.10).

methodology chapter is used as a proxy to the conventional human capital variable experience. Maxwell (1985) found this variable to have a significant positive effect on retirement income. In this analysis the regression slope of the bivariate regression of pension income on years worked with last employer is significant and positive (44.97). In other words, pension income increases as number of years worked with last employer increases. Specifically, for every additional year that a respondent had worked with his/her last employer prior to his/her retirement, pension income increases by $44.97. When this variable however, is introduced into the multiple regression it is no longer significant even though it is still in the predicted direction (18.53). Number of years worked with last employer therefore will not be included in the final model.

B. Summary

In summary, the results of this section demonstrate the importance of the individual characteristics of Canadian retirees in determining pension income levels. Also they show the utility of using the status attainment and human capital models for explaining retirement income differences. Social origins, age, age at retirement, gender, occupational status all affect the amount of pension an individual receives when he/she retires. Gender interacts with age and age at retirement. These interactions will be discussed in more detail in the final model.

TABLE 9

THE STATUS ATTAINMENT AND HUMAN CAPITAL MODELS OF PENSION INCOME

INDEPENDENT VARIABLE	SLOPES
Age	-2746.1*
Gender	5124.1
Age square	18.243**
Age at retirement	56.740
Age and Gender	-345.17**
Age at retirement by gender	326.36**
Respondent's occupation	48.87*
Constant	98009.
R-square	.27323

* Significant at $p < 0.05$, one tail test

** Significant at $p < 0.05$, two tail test

C. TESTING THE STATUS ATTAINMENT AND HUMAN CAPITAL MODELS ON INVESTMENT INCOME

Table 10 shows the results of regressing each of the status attainment and human capital variables on investment income.

Demographic variables

None of the bivariate regression slopes of investment income on the demographic variables are significant. Moreover, a test for the possible quadratic effect of age also yields no significant results.

The demographic variables age, age at retirement, number of children and marital status were tested to see whether they interact with gender. The only significant interaction was between marital status and gender. Analysis of covariance showed that the slopes of investment income on marital status differed for males and females. Never married women are more likely to have higher investment income than ever-married women and never married men. A new variable was created which was a cross product of gender and marital status. When marital status, gender, and the interaction term is regressed on investment income it is significant and negative (-8049.6). To interpret the effects of the above variables along with its interactions a fitted means table was created, Table 12, using the regression coefficients from Table 11.[27] The fitted means show that pension income is much higher for never-married women ($6904.2) than it is for never-married men. Even though ever-married men have on the average considerably more investment

[27]Occupation and years worked with last employer were set to be equal to their means. The mean for occupation was 39.44, and for years worked with last employer was 19.9. ans

TABLE 10

BIVARIATE REGRESSIONS INVESTMENT INCOME ON STATUS ATTAINMENT AND HUMAN CAPITAL VARIABLES

INDEPENDENT VARIABLES	SLOPES UNSTANDARDIZED	STANDARDIZED(r)
Age	-30.05	-.03034
Gender	1017.20	.06842
Age at retirement	-54.94	.01506
Marital Status	-184.10	-.03012
Number of children	-228.62	-.07216
Mother's education	237.36*	.10117
Father's education	166.22	.08187
Respondent's education	309.92*	.19168
Respondent's occupation	97.28*	.18434
Father's occupation	40.86	.08137
Years worked with last employer	92.51*	.18013

* Significant at . $p < 0.05$, one tail test

TABLE 11

THE STATUS ATTAINMENT AND HUMAN CAPITAL MODELS OF INVESTMENT INCOME

INDEPENDENT VARIABLES	SLOPES
Gender	1037.10
Marital Status	4019.20**
Marital Status by gender	-6544.90**
Respondent's occupation	88.852*
Years worked with last employer	79.615*
CONSTANT	-2203.6
R-Square	.08441

*Significant at $p < 0.05$, one tail test
*Significant at $p < 0.05$, two tail test

TABLE 12

AVERAGE INVESTMENT INCOME SLOPES FOR NEVER-MARRIED AND EVER-MARRIED MALES AND FEMALES

Marital Status	Male	Female
Never-Married	$1396.4	$6904.2
Ever-Married	$3922.1	$2885.0

The average income slopes are calculated using the formulae:

Never-Married Males

$\hat{y}$ = -2203.6 (intercept) + 1037.1(gender) + 4019.2(dsingle) + 6544.9(dsingle x gender) + 88.852(mean occupation) + 79.615(years with last employer)

Ever-Married males:

$\hat{y}$ = -2203.6 (intercept) + 1037.1(gender) + 88.852(mean occupation) + 79.615(years with last employer)

Never-married females:

$\hat{y}$ = -2203.6 (intercept) + 4019.2(dsingle) + 88.852(mean occupation) + 79.615(years with last employer)

Ever-Married females:

$\hat{y}$ = -2203.6 (intercept)+ 88.852(mean occupation) + 79.615(mean years with last employer)

income ($3922.1) than ever-married women ($2885.0), the difference is not as notable as between never-married men and never-married women.

Family Background

The bivariate regression slope of mother's education and investment income is marginally significant (.0660) and in the predicted direction ($237.36) . For each year increase in mother's education, investment income increases by $237.36. Contrary to our hypothesis, father's education is not significant although the slope is in the predicted direction (40.86). When father's occupation is added to the bivariate regression of mother's education on pension income, it is still not significant, but mother's education remains marginally significant (.0893) and positive (221.50). Based on this results, father's occupation will be excluded from further analysis.

Mother's education was introduced into the multiple regression which included gender, marital status and its interaction with gender, it is marginally significant (.0524) and positive ($260.20).

Respondent's education

The bivariate regression of respondent's education is significant and positive (309.92). This means that the higher the respondent's education the higher his/her investment income. For each year increase in respondent's education, investment income increases on the average by $309.92. This variable alone explains 3% of the variation in investment income.

Analysis of variance with the residuals of investment income and education indicated a non-linear relationship between education and investment income. However, when the

education square term was introduced into the regression it was not significant.

In addition test for interaction between gender and education was performed. Analysis of covariance showed that the slope of investment income on education did not differ significantly for males and females.

Respondent's education remains significant and positive (300.43) even when controlling for the effects of gender, marital status and the interaction term between gender and marital status. Adding this variable to the multiple regression increases the R-square from 3% to 7%. This low R-square is probably due to the badly skewed nature of the dependent variable (as discussed in the methodology section).

Controlling for the effects of respondent's education on investment income, mother's education is no longer significant, which means that family background has an indirect effect on respondent's investment income, its direct effect is mainly through respondent's education.

Respondent's occupation

The regression slope of respondent's occupation and investment income is significant and positive (97.28). The positive slope indicates that the higher the prestige score in the Blishen scale of respondent's occupation the higher the investment income . For each unit increase in the prestige score of respondent's occupation, investment income increases on the average by $97.28. This variable alone explains 3% of the variation in investment income.

When added into the multiple regression respondent's occupation remains significant and positive (98.57), which means that respondent's occupation has a significant positive effect on investment income even when controlling for the effects of marital status, its interaction with gender, and respondent's education. Controlling for the effects of

respondent's occupation, the effect of his/her education on investment income are no longer significant even though it is in the predicted direction (106.88). Education then has an indirect effect on investment income, its effect on investment income is mainly through respondent's occupation. Adding this variable to the multiple regression increases the R-square from 7% to 10%.

Following previous literature findings (as discussed in the pension income section) test for interaction between gender and occupation was conducted. However, analysis of covariance showed no significant differences between the slopes of investment income on respondent's occupation. Consequently, when the cross product term of occupation and gender is introduced into the multiple regression it is not significant. Thus, the conclusion of no interaction stands.

Years Worked with Past Employer

The slope of the bivariate regression of years worked with last employer was positive (92.51) and significant. This means that the longer one worked with his/her employer prior to retire the higher his/her investment income. For each year worked with last employer investment income increases on the average $92.51. This variable explains 3.2% of the variation in investment income.

When years worked with last employer is introduced into the multiple regression equation it remains significant and positive (79.61).

D. Summary

Again the findings of this section demonstrate the utility of the status attainment and human capital models for explaining retirement income differences based on investments. Social origins and respondent' educational background have an indirect effect on

investment income mainly through respondent's occupation. Marital status and years worked with previous employer were also found to have an effect investment income. This suggests that individual characteristics play an important role in maintaining investment income differences.

E. TESTING THE LABOUR MARKET SEGMENTATION MODEL ON PENSION INCOME

Analysis of variance of the residuals from the multiple regression shown in Table 5 indicated no significant differences among the residual means of men's pension income, given their sector location, but showed significant differences among the residual means of women's pension income, given their sector location. The results of the analysis of variance showed that women who had worked in the public administration industry and low manufacturing industries had on the average higher pension income than women who worked in all other industrial categories. To capture this interaction two cross products between gender and public administration and gender and low manufacturing were created.

Table 14 shows the results of multiple regression that includes these interaction terms. The interaction slope of gender and public administration is significant and negative (-4986.9), and the interaction slope of gender and low manufacturing is also significant and negative (-6470.9). By including these labour market segmentation variables into the multiple regression, the R-square increases from 28% to 32%. Unfortunately, no conclusions can be reached about the effect of sector location in pension income since there ar only a few cases in both industrial categories (9 and 8 respectively).

Despite these inconclusive findings regarding the effect of sector location on pension income, the data do provide some support for the sectoral model tested here. Table 15 shows some industries are more likely to pay pension/retirement benefits to their employees, than are other industries. There are also gender differences among the various sectors. A higher proportion of men who have worked in core industries such as mining transportation, high manufacturing and finance receive private pensions than do women. Only the public administration industry provides women with this benefit. Explanations

TABLE 13

MULTIPLE REGRESSION
PENSION INCOME ON STATUS ATTAINMENT, HUMAN CAPITAL AND LABOUR MARKET SEGMENTATION VARIABLES

INDEPENDENT VARIABLES	SLOPES
Age	-3058.1*
Age square	20.38**
Gender	8262.4
Gender by age	-339.71**
Age at retirement	104.82*
Age at retirement by gender	281.04**
Respondent's occupation	54.15*
Public administration industry	4227.5
Low manufacturing industry	3055.4**
Public administration by gender	-6470.9**
Low manufacturing by gender	-4986.9**
Constant	105490
R-Squared	.32656

* Significant at $p < 0.05$, one tail test

**Significant at $p<0.05$, two tail test

TABLE 14

PERCENTAGE OF MALES AND FEMALES RECEIVING PRIVATE PENSION BENEFITS BY INDUSTRY

	Males		Females		Total
	#	%	#	%	#
Agriculture	5	16.7	1	14.3	6
Forestry	2	40.0	-	-	2
Mining	4	80.0	-	-	4
Low Manufacturing	2	40.0	4	31.8	6
Medium Manufacturing	15	68.2	1	16.7	16
High Manufacturing	12	66.7	-	-	12
Construction	-	-	-	-	-
Transportation	11	91.7	1	33.3	12
Trade	8	40.0	8	29.6	16
Finance	5	33.3	2	50.0	7
Community	11	42.3	25	45.5	36
Public Administration	6	60.0	8	100.0	14

Males
Chi-square 38.239 p=.0001
DF=11

Females
Chi-Square 19.198 p=.0236
DF=9

for these gender differences will be provided in the discussion of the final pension income model.

F. TESTING THE LABOUR MARKET SEGMENTATION MODEL ON INVESTMENT INCOME

Analysis of variance with residuals from the multiple regression shown in Table 8 indicated no significant differences among the residual means of both men's and women's investment income, given their sector location. This variable therefore will not be included in the final model.

G. SUMMARY

The findings of this section provide little support for the hypothesis which argues for the importance of sector location in influencing the different retirement income sources. Even though there are some sectoral differences among women working in low manufacturing industries and public administration, there are only a few cases in these industrial categories. Even though no conclusions can be drawn about the effect of sector location on both pension and investment incomes, there is some evidence of sectoral differences in the receipt of private pensions.

H. OTHER JOB-RELATED INDEPENDENT VARIABLES

Ownership and Self-Reported Government Employment Variables

As discussed in Chapter 3, another sector variable available in the 1979 York Quality of Life Survey allows for an examination of pension and investment income differences among owners versus employees. Specifically, it makes possible the comparison between: (1) retirees who owned their own business and those who didn't and (2) government workers versus non-government workers (including business owners).

When these specific variables are entered into the pension income model the slope for business owners is significant and negative (-1392.4). This negative slopes means that business owners have less pension income than non-owners. The slope of government workers is marginally significant (.0677) and not in the predicted direction (-1676.8) since we expect government employees to have better pension plans than non-government (Maxwell, 1985).

Entering this variable into the investment income model the slope of owners as expected is significant and positive (3596.00), indicating that owners are likely to have higher investment income than non-owners. The slope of government workers is not significant and therefore it will be excluded from the final investment income model.

Retirement-Related Variables

The existence of private pensions and/or retirement benefits greatly influence the financial status of Canadian retirees. For example, individuals with private pensions are more likely to have higher pension and investment income. Moreover, the level of income received from these pension plans is also affected by whether or not these pensions are

indexed to make up for inflation. We would expect that individuals whose pension plans are fully indexed to make up for inflation to have higher pension and investment income relative to those whose pension plans are partly or not indexed and to those who have no pension plans at all.

However, when we introduce the retirement-related variables into the regression equation, we find that the effect of private pensions is not significant (315.22). Therefore, we will not include it in the final pension income model. However, the slope of fully indexed pensions is significant and positive (1966.1). Since this variable is represented by a dummy variable (1=fully indexed pensions, 0=non-fully indexed pensions), the positive slope means that individuals with fully indexed private pension have on the average more pension income than those who do not.

When these pension-specific variables are entered into the investment income model, they are not significant even though both partial slopes are in the predicted direction. Consequently, these variables will not be included in the final investment income model.

I. FINAL PENSION INCOME MODEL

The final pension income model shown in Table 15 presents the combined effects of the significant status attainment, human capital , labour market segmentation, and"other" job and retirement-related characteristics. These variables together explain almost 37% of the variation in pension income. The demographic variables age and gender strongly affect pension income. Age is shown to have a negative effect on pension income and this effect is curvilinear. Table 3 shows the decrease in pension income at different ages, this decrease being more drastic after age 65 (usual retirement age of Canadians) and leveling off at age 80. Moreover, the negative effect of age is found to be greater for men than for women. One possible explanation for this finding is that men's wages have risen more rapidly with inflation than did women's, so that older men's earnings are considerably less than younger men's. The income differences between older and younger women is not as pronounced as men's.

Age at retirement has a significant positive effect on pension income. This is because most pension plans require a certain number of years of service before employees can acquire a vested right to a deferred pension. Moreover, the older the individual retires, the higher his/her contributions towards a pension plan. Men (because of higher labour market earnings) benefit more in terms of pension income than women the older they retire.

Consistent with previous research on income and retirement income attainments (Ornstein, 1983; Boyd & Humphreys, 1979; Treimann & Terrill, 1975; Cuneo & Curtis, 1975; O'Rand & Landerman, 1984) women on the average have less pension income than men. This is because women usually have lower labour market earnings than men, even when controlling for the effects of education and occupational status. These lower labour market earnings in turn translate into lower pension income benefits. This finding is in support of the main hypothesis of this thesis which argues that labour market earnings are

strongly related to retirement income. The overall effect of gender on pension income is of course more complex due to interaction between gender, age and age at retirement (as discussed above).

Family background as shown in this analysis has an indirect effect on pension income controlling for the effects of all other variables, it affects pension income through its effect on respondent's occupation. This finding is in support of previous research studies which have shown that social origins exert an influence on the individual's educational and occupational attainments.

The most unexpected finding in this section is the insignificant relationship between education and pension income. Despite previous research findings which have shown the strong explanatory power of this status attainment and human capital variable (Maxwell, 1986; Leon, 1985; Ornstein, 1982), there is no significant indirect effect of education on pension income, and once occupation is introduced into the equation, the slope of education is negative but non-significant. The absence of a positive effect of education on pension income can be attributed to fact that highly educated individuals may be retiring early (even though this retirement decision may negatively affect their pension income) because they may be more willing to trade leisure time for money. Because of the positive relationship between education and investment income (via occupation) found in this analysis, it is also quite possible that educated individuals have higher investment income to rely on in their old age.

Occupational status on the other hand is found to have a significant positive effect on pension income, this variable being more responsible for wage and pension levels, than education per se. As indicated by the results, the higher the occupational status of the respondent, the higher his/her pension income. Again, as mentioned above, pension plans are calculated based on earnings and length of membership. It follows that those with higher occupational status have higher earnings and thus higher pension income.

There is little evidence that sector location has a significant effect on pension income. The only positive result is obtained for women's pension income, while there are no sectoral differences in men's pension income. The findings show that women who have worked in the Public Administration and Low Manufacturing industries have higher pension income than women who worked in other industries. Unfortunately, these findings are not conclusive since there are only a few cases in both industrial categories mentioned above and this may mean that the differences found here represent the idiosyncratic cases[28].

When we turn to the question of who receives a private pension, we see some support for the hypothesis that sector location is one of the different factors which may also influence retirement income levels. Table 15 shows some industries tend to reward their employees with pension/retirement benefits than do other industries. As the findings here have demonstrated, the existence of private pensions - provided that they are fully indexed to make up for inflation -positively affects pension income.

The various industrial sectors however, reward men and women differentially. Men are more likely to receive private pensions if they have worked in core industries than are women. The only industry more likely to provide women with this income source is the Public Administration Industry. These gender differences can be attributed to: (1) women having interrupted labour force participation; (2) a higher proportion of women work part-time; (3) women are concentrated in traditional occupations which are not as likely as men's occupations to be unionized.

The existence of a private pension/retirement benefit from the respondent's employer does not affect pension income levels. Rather, what is important is the quality of this pension/benefit. As shown, respondents whose pension plans are fully indexed to make up for inflation have on the average higher pension income than those whose pensions are

[28]The results could also be due to chance because of the probability of committing Type I error in rejecting the Null hypothesis.

partly or not indexed and those who do not receive such benefits from their employer.

Unlike Maxwell (1985) who found government workers to have higher pension incomes, controlling for the effects of education, years employed at first and longest job as well as age and race, our analysis does not support his findings. In our sample, government workers have lower pension income than non-government workers, controlling for the effect of other independent variables.

As expected, business owners have less pension income than non-owners simply because these individuals are less likely to belong to any private pension plan, except that some business owners may have contributed towards the to Quebec/Canada Pension Plan. The absence of private pensions for business owners is made up for by their investment income.

TABLE 15

FINAL PENSION INCOME MODEL

Independent Variables	Slopes
Age	-2871.6*
Age square	18.87**
Gender	7662.8
Gender by age	-302.35**
Age at retirement	124.77*
Gender by age at retirement	242.81**
Respondent's occupation	55.71*
Public administration industry	3313.6
Gender by Public administration	-3981.2**
Low manufacturing	3576.7**
Gender by Low manufacturing	-7169.0**
Business owners	-1209.1*
Governemnt workers	-1932.8*
Fully indexed pension	2394.8*
Constant	99391
R-Squared	.36905

* Significant at $p < 0.05$, one tail test
**Significant at $p<0.05$, two tail test

J. FINAL INVESTMENT INCOME MODEL

Table 16 presents the final investment income model which includes all significant variables. As shown, marital status interacts with gender ; never-married women receive on the average more investment income than never-married men. This is because never-married women are more likely than ever-married women to have participated in the labour force and more likely to have uninterrupted labour force participation. Ever-married men however, benefit more in terms of investment income than ever-married women.

Occupational status and number of years worked with last employer have significant positive effects on investment income and these findings are consistent with previous research (Ornstein, 1983; Maxwell, 1986; Henretta & Campbell, 1978; Leon, 1985; O'Rand & Landerman, 1984). The higher the occupational status of the respondent the higher the labour market earnings and therefore the higher the ability to translate these earnings into investment income. In addition, the greater the number of years worked with employer prior to retirement the higher the investment income. Steady career patterns for some respondents, as Leon (1985) indicated, may mean that these retired individuals were probably working in jobs in core industries where earnings are usually higher than they are in periphery ir dustries.

Our exploration of the impact of sector location on investment income is disappointing. The findings provide no support for the hypothesis that sector location has a significant effect on investment income. Unlike Leon (1985) and Maxwell (1986) who have demonstrated the strong explanatory power of the labour market segmentation model, this analysis fails to do so. It may be that larger sample may result in obtaining statistically significant effects of sector location on investment income.

The "other" sector variable examined in this analysis showed significant differences in investment income among business owners and non-owners. As the findings demonstrate,

business owners have on the average higher investment income than non-owners. It may be that business owners have higher earnings and are therefore in better position to save for retirement. Ownership may also translate into savings and investment over the life course. Investment income can also reflect the interest on money gained through the sales of the business when the respondent retires. Moreover, business owners may be more inclined to buy retirement savings plans than non-owners since the former are less likely to contribute to any private pension plans.

TABLE 16

FINAL INVESTMENT INCOME MODEL

Independent Variables	Slopes
Gender	833.7*
Marital Status	4583.7
Gender by Marital Status	-8052.1**
Years worked with last employer	67.49*
Business owners	3375.4*
Respondent's Occupation	98.57*
Constant	-2906.1
R-Squared	.11690

* Significant at $p < 0.05$, one tail test

**Significant at $p<0.05$, two tail test

VI. CONCLUSIONS

A. Summary of Findings

The primary goal of this research study was to identify the factors that affect retirement income in Canada. Chapter 2 has shown that Canadians derive their retirement income from a variety of sources. With the exception of flat-benefit pensions (OAS, GIS, SPA), all other sources of retirement income have very strong ties with the labour market. This means that labour market earnings have an effect on how much income an individual gets when he/she retires.

The strong relationship between labour market earnings and retirement income has prompted some researchers to investigate the explanatory power of three income determination models used to study wage differentials among current workers: status attainment, human capital and labour market segmentation. The results of this research have demonstrated the ability of these models to explain income differences among the retired population.

Review of relevant literature suggested that wage and retirement income differences are the result of a multiple of factors which cannot be explained by adopting only one of the above mentioned income determination models. This is because each of the models attributes income differences to different causes. The status attainment and human capital models attribute income differences to differences in the individual-characteristics of workers, while the labour market segmentation theory to structural features of the economy.

Previous research has shown that income/retirement income determination models which include both individual-level and structural explanations of income/retirement income inequalities have higher explanatory power. Based on these results, the retirement income

determination model in this research project is an extension of Ornstein's (1983) income determination model; it contains variables from the status attainment, human capital and labour market segmentation models specifically: social origins, age, gender, marital status, number of children, education, occupation, years worked with last employer and sector location. In addition, it includes certain pension-specific variables, such as age at retirement and entitlement to a private pension.

Chapter 3 provides information about the data and the method of analysis employed in this research project. The data are obtained from the "Social Change in Canada" project. This project conducted three national panel surveys in 1977,1979,1981. The target population for each survey included all adults 18 years or more living in Canada, and excluded remote regions, native reservations and institutionalized groups. This survey was chosen because unlike any other Canadian survey to date, it contains important questions regarding retirement. The 1979 panel survey was selected for this analysis of retirement income, since this particular year has a number of retirement-related variables not available in the 1977 and 1981 surveys. This thesis examines that proportion of the sample which identified itself as retired. This retired sample included 169 men and 129 women. The analysis of pension income, however, is restricted to respondents retired at least for three years, in an attempt to separate pension income from job-related earnings; while the analysis of investment income included all retired respondents.

Two dependent variables were used in this study: pension and investment income. The selection of these dependent variables was guided by the fact that in Canada multiple sources of retirement income exist. The effect of the different independent variables was examined separately for each dependent variable.

Chapter 4 contains the results of the data analysis. The findings show the differing explanatory powers of the three models used in this research study. The status attainment and human capital models clearly provide better explanations of both pension and

investment income differences among Canadian retirees.

With respect to pension income, the respondent's occupation is the only stratification variable that has a significant positive effect on pension income. This income source is also affected by the possession of a fully-indexed pension. This finding (when it first came to light during the preliminary analysis) led us to decide that the respondents defined "job income" as pension income. In other words, this finding provided the rationale for treating the job income as measuring pension income that derives from the labour market.

Regarding investment income, occupational status was also found to have a positive direct effect on investment income. In addition, business owners report more investment income than employees. This is because this income could derive either from investments made over the owner's life (stocks and bonds), or it could represent interest on income derived from the sale of business (i.e., land in the case of farmers, who define themselves as owing their own business). In addition to occupation, the human capital variable years worked with last employer was also positively related to investment income.

The absence of a direct effect of education on pension income is another interesting finding. In part, the absence of a positive education effect on pension income is offset by the positive effect of education in investment income. In other words, the investment income partly makes up for the loss of pension income. However, it is still not clear why educated people have less pension income.

Based on the results, the importance of employer characteristics in affecting pension and investment income levels is not clearly demonstrated. Similarly to Ornstein (1983) little evidence of sector effects on pension and investment incomes were found, even though it is evident that sectoral differences in the receipt of private pensions do exist. The section that follows will discuss some of the problems associated with the measures of sector locations used in this study.

B. Discussion of findings and suggestions for future research

This study has shown the utility of using existing income determination models for explaining retirement income differences. Based on the results, one major conclusion can be drawn about the retirement income determination process in Canada: the individual characteristics of workers are mainly responsible for pension and investment income differences in retirement. This seems to indicate that workers in Canada are rewarded primarily on the basis of their individual characteristics (i.e. education, occupation, gender), and these earlier rewards translate into higher retirement income.

This is not to say however that employer characteristics have no effect on the different retirement income sources. Even though no sectoral effects on pension income were found, the relationship between sector location and possession of a private pension is noteworthy, since it is consistent with the labour market theory. Had this thesis considered private pensions as a primary dependent variable, the labour market segmentation theory would have fared better.

Although the results of this study show sectoral differences in the receipt of private pensions, both measures of sector location employed here failed to explain income differences among Canadian retirees. These contradictory findings point the need for better measures of sector location. The conventional dichotomy of the economy into core and periphery sectors adopted here, is based on crude differences in the 2 sectors i.e., similarities in industrial function. Consequently, important key labour market factors like the strength of professional associations and labour unions are ignored. Moreover, no attention is paid to the changing employment patterns that are emerging - contracted, temporary and part-time work - which are certainly going to have a tremendous effect on the income of future retirees. A more detailed sectoral model that takes into account the above mentioned criteria would perhaps yield satisfactory results.

The second measure of sector, as discussed earlier, did not work because a large

sample is needed so that there are enough cases in each industrial category to make conclusions.

There is abundant evidence in the literature to show that women are concentrated in lower paid jobs, and that they receive less pay for work of equal value. Moreover, women are more likely to have interrupted labour participation because of child-bearing and child-rearing responsibilities. As a result of women's lower wages and broken career lines, women are further penalized by receiving lower pensions. The findings from this study suggest that different models of retirement income for both men and women are needed to account for their different labour market experiences.

This project has considered only a limited number of variables known to affect retirement income. There are, however, other important factors which must also be included when examining differences in the economic status of Canadian retirees. One of these factors is social class. Ornstein (1983) has found that social class[29] explains 22.1% of the variation in wages, 8.2% when human capital and other variables are held constant. Differences in relation to the means of production are central features of the capitalist economy and their effects on income and retirement income attainments must be explored further.

Another very important variable for the study of retirement income is number of years worked at longest job, rather than last job . Because most plans are based on earnings and length of membership we would expect retirement income differences among those who had steadier career patterns before retirement as compared to those who did not. This would be a more useful variable than the conventional "work experience" human capital variable which as we have seen suffers from certain methodological problems

Even though this study of retirement income has gone further than most research in this

[29]Three criteria were used to define social class following Wright (1976:30): (1) control over the physical means of production, (2) control over labour power, and (3) control over investments and resource allocation.

area by attempting to identify the factors that affect the different retirement income sources, it has been hampered by the fact that the retirement income questions asked in this survey do not appear to be clearly defined for the respondents. As a result, the small retired sample was further shrunk because of the decision made to restrict the analysis to respondents retired for at least 3 years. It has also been difficult to know what type of retirement income source respondents had in mind when they were answering the questions. Because of the complexity of the pension structure, survey questions geared towards the retired population must be detailed enough to identify all possible income sources. If possible, future research should provide respondents with the operational definition of different income sources. Information on work for pay subsequent to retirement from main occupation will also be required.

There is also a need to model the decision to retire. It is not possible to do in this analysis because retirement is not as clear cut as the York Quality of Life treats it. Retirement is a rather complex process which has a wide range of effects on individuals. There are various routes people take to arrive at retirement. Some retire because of health reasons. Others retire because they are eligible to retire and are willing to do so. There are also those who retire because they have lost their jobs and are unable to find new ones. Another proportion of the population is forced by mandatory retirement policies. (Atchley, 1982:121). Hence, the timing of retirement also varies, with some people retiring at the customary age, while others retire earlier or much later. Others may "officially" call themselves retired and they may be receiving pensions, but continue to work.

One perhaps could capture most of the complexity with a three or four category variable rather than a simple dichotomy- i.e., in labour force full-time, formally retired but work full-time or nearly full-time at related occupations (i.e.,consulting, emeritus professor), formally retired but works on and off for pay, either full-time or part-time, formally retired with little or no work for pay. Modelling the status, partly as a function of income (current

or anticipated) could explain some of the puzzling findings about the relation between income and education, or income and receipt of a private pension.

Because the reasons behind the decision to retire have detrimental effects for the financial well being of retirees, they must also be incorporated into any retirement income determination model. Identifying these reasons and measuring their effects on retirement income will give us a better understanding of the whole retirement income determination process in Canada. Moreover, following individuals making the transition to retirement would allow for a direct comparison between pre-retirement and post-retirement incomes. In sum, future research should attempt to develop a more dynamic retirement income model which will better reflect the various nuances of a person's history as an income producer and consumer.

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